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THE FINAL REPORT FOR THE COORDINATED FIRST-GRADE STUDIES FROM THE OFFICE OF EDUCATION IS PRESENTED. THE STUDIES INVESTIGATED THE FOLLOWING--(1) TO WHAT EXTENT PUPIL, TEACHER, CLASS, SCHOOL, AND COMMUNITY CHARACTERISTICS ARE RELATED TO FIRST-GRADE READING AND SPELLING ACHIEVEMENT, (2) WHICH APPROACH TO INITIAL READING INSTRUCTION PRODUCES SUPERIOR READING AND SPELLING ACHIEVEMENT AT THE END OF GRADE ONE, AND (3) THE EFFECTIVENESS OF ANY PROGRAM FOR PUPILS WITH HIGH OR LOW READING READINESS SKILLS. THIS EXTENSIVE REPORT CONTAINS A REVIEW OF THE LITERATURE, AN OVERVIEW OF THE INDIVIDUAL STUDIES AND OF THE PROCEDURES, ANALYSES OF RELATIONSHIPS AND OF INSTRUCTIONAL METHODS, ANALYSES BY READINESS LEVELS, A COMPARISON OF CLASS MEANS AND OF INDIVIDUAL ANALYSES, A DISCUSSION OF THE RELATIVE INFLUENCE OF TREATMENT AND PROJECTS, A SUMMARY, AND CONCLUSIONS. A BIBLIOGRAPHY, FIVE APPENDIXES, AND TABLES ARE INCLUDED. (BK)

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COORDINATING CENTER FOR FIRST-GRADE READING INSTRUCTION PROGRAMS

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COORDINATING CENTER FOR FIRST-GRADE READING INSTRUCTION PROGRAMS

Project No.: X-001

Contract No.: OE-5-10-264

Guy L. Bond
Robert Dykstra

1967

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University of Minnesota
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CHAPTER I

INTRODUCTION

This study was designed to obtain information relevant to three basic questions. (1) To what extent are various pupil, teacher, class, school, and community characteristics related to pupil achievement in first-grade reading and spelling? (2) Which of the many approaches to initial reading instruction produces superior reading and spelling achievement at the end of the first grade? (3) Is any program uniquely effective or ineffective for pupils with high or low readiness for reading?

Rationale

Every year hundreds of thousands of children begin the complex task of learning to read. For most children growth in reading is a successful undertaking. For many, however, the progress is slow, and for others learning to read appears to be an unobtainable accomplishment. There is a continuous search for new ways to teach reading which will prevent the difficulties these children encounter, thereby enabling all children to become successful readers. Moreover, even for those children who have apparent success in learning to read, there is always the question of whether or not a different approach would have enabled them to become even more mature and diversified readers.

In recent years there have been suggested many new approaches to reading instruction. There have also been many questions raised about current methods of teaching reading. In fact, the teaching of beginning reading has been and continues to be a popular subject for debate among reading experts and the general public alike. Even though a great deal of research has been devoted to the problem, there are still a number of controversies concerning instructional procedures in beginning reading. Many new approaches to initial instruction have been formulated and implemented but have not been subjected to comparative research to any extent. Furthermore, most of the research has been conducted in a piece-meal fashion by independent investigators. As a result, comparisons among the individual studies have been difficult for a number of reasons:

1. Independent investigators have used different tests to measure reading readiness and reading achievement. Norming populations for the various tests may be quite different and as a result it is difficult to compare achievement of pupils whose reading ability has been assessed by different instruments.

2. The extent to which investigators have assessed and/or controlled such factors as experiential background of children, class size, teacher competence, enthusiasm for the teaching method employed and other such variables has varied from study to study.
3. Research designs and methods of statistical analysis have varied from study to study.
4. Evaluation of post-instructional reading ability has been incomplete and inappropriate.
5. Experimental guidelines such as length of instructional period have varied considerably in independent investigations. Furthermore, the length of some experimental periods has been inadequate for demonstrating long-range effects of approaches to initial reading instruction.
6. Methods, materials, and experimental populations have not been adequately described in order to make comparisons between studies possible.

The Cooperative Research Studies in First-Grade Reading Instruction were designed to overcome many of the difficulties listed. The unique contribution of this research program was its provision for coordination of a number of individual reading studies, thereby making possible the exploration of the relative effects on early reading growth of various approaches to initial reading instruction under similar experimental conditions.

Background of the Study

A group of reading research experts met at Syracuse University in 1959 to discuss ways to improve the quality of research in the field of reading. The participants were members of the Committee on Needed Research in Reading which was established by the National Conference on Research in English. This group concluded that the problems of beginning reading instruction should receive first priority.

In 1960 a second conference was held at the University of Chicago for the purpose of establishing guidelines for conducting a large-scale investigation of initial reading instruction. Plans were drawn for a cooperative research venture if support for the program could be obtained. In 1963 the Cooperative Research Branch of the U.S. Office of Education indicated its willingness to provide financial support and invited proposals dealing with primary reading instruction.

In 1964 another meeting of reading researchers was held at the University of Chicago. This meeting had as its goal the formulation of recommendations concerning the cooperative research program. Among other things participants recommended the establishment of a coordinating center which would facilitate communication among projects which were going to take part in the study.

The Coordinating Center for the Cooperative Research Program in First Grade Reading Instruction was established at the University of Minnesota in 1964. Furthermore, twenty-seven projects were selected for support by the U.S. Office of Education out of seventy-six proposals which were submitted. The projects were selected on the basis of their individual merit as self-contained studies but each project director also agreed to abide by common standards regarding experimental procedures and data collection. A brief description of each project is presented in Chapter III. The role of the Coordinating Center and the cooperative aspects of the research program are presented in Chapter IV.

Organization of the Report

Relevant research is reviewed in Chapter II. Chapter III presents a brief overview of each of the participating projects. Chapter IV describes the role of the Coordinating Center, the types of data collected, the experimental procedures, and the organization of the data for analysis. The relationships among pupil readiness, class, school, and community characteristics, teacher characteristics, and pupil achievement are reported in Chapter V. The evaluation of approaches to initial reading instruction is described in Chapter VI. Chapter VII presents the analysis of differential treatment effects for pupils of high or low readiness as measured by the tests used in this investigation. Chapter VIII compares treatment effects according to two different ways of handling the data -- using either individual pupils or class means as the experimental variable. Chapter IX describes an analysis which ranked all of the treatments in all projects according to their effectiveness. Chapter X reports the summary and conclusions. Descriptive data concerning all treatments within all projects are presented in the appendix as are many tables not directly relevant to the discussion of the data analysis.

CHAPTER II

REVIEW OF LITERATURE

A large number of studies have been reported which aim to determine the efficiency of different methods of teaching beginning reading. The results of these experiments have often been inconclusive, and at times, contradictory. Because of the variability of the results reported by investigators, the reader is left with little irrefutable evidence from which to determine the comparative efficiency of the methods of teaching reading which have been studied. After reviewing literature concerning the various methods of teaching reading, Gray (30), in the reading section of the *Encyclopedia of Educational Research* concluded that the issue was not which method was better, but rather what does each method contribute most effectively.

Russell and Fea, in their chapter, "Research on Teaching Reading" in the *Handbook of Research on Teaching* stated that historically

> thinking in the field has moved away somewhat from an either-or point of view about one method or set of books to a realization that different children learn in different ways, that the processes of learning to read and reading are more complex than we once thought, and that the issues in reading instruction are many sided. (52:867)

Most of the studies reviewed in this chapter involved comparative studies between basal reading programs and some other approach to teaching children to read.

The basal reading series has been the backbone of the elementary reading program in the United States for many years. In 1957, Stewart (60) reported on a questionnaire survey of practices in teaching reading. The survey included school systems in 107 cities of over 25,000 population, in forty states. These districts were responsible for the reading instruction of 250,000 children. Stewart's conclusion was that "All the schools are making use of one or more basic reading series." Austin and Morrison (7) reported that in more than ninety-five per cent of the elementary schools they studied, the teachers rely heavily upon a basal or co-basal reading program.

The review of literature that follows is not all-inclusive, but is intended to be a sampling of the results reported and of the literature available in the areas of concern. In the literature concerning some approaches to beginning reading instruction, there is a great deal of opinion and intuitive writing available, some of which has been included in this review.

The Initial Teaching Alphabet

One of the more recent innovations in the teaching of beginning reading is the Initial Teaching Alphabet, hereafter referred to as I.T.A. I.T.A., developed by Sir James Pitman, was originally called the Augmented Roman Alphabet. According to Downing, the major investigator in I.T.A. studies in England, "The initial teaching alphabet has been designed for the specific purpose of helping children in the early stages of learning to read." (22:15)

Using the I.T.A. materials, children learn to read using textbooks printed in a special alphabet consisting of forty-four characters. Twenty-four of these are Roman or Latin characters used in traditional English print. There are twenty new letters, most of which are augmentations of the Roman alphabet. These characters are designed to regularize the coding of the basic sound units of English. Only lower case letters are used in order to reduce the number of characters necessary for the children to learn. Upper case letters are represented by larger forms of the I.T.A. lower case shapes. After pupils have gained confidence and fluency in reading I.T.A., they are to transfer their skills and confidence to reading material printed in the conventional characters.

Downing (22) claimed that the teacher does not generally have to modify his teaching methods except for some adaptations forced upon him by the nature of I.T.A. In other words, I.T.A. may be used with a whole-word method, a phonics method or a language experience method. Downing stated,

> Summing up, it is claimed that i.t.a. should help the global approaches to the teaching of reading because it makes the visual patterns invariable, and it should help the phonic approach, because in i.t.a. each symbol represents, with certain exceptions, one phoneme. (22:21)

Downing further asserted that the use of I.T.A. with primary children will likely lead the pupils to learn that there is a systematic relationship between spelling and speech, and that experience with I.T.A. may help the children in their general intellectual development.

Downing (21) stated there are two criticisms sometimes leveled at I.T.A.: 1) there may be too many characters for the children to learn; and 2) the new characters may be too difficult for the beginner to form with a pencil. Downing refuted the first of these claims by explaining that by traditional orthography, the children have to learn many more characters than by the I.T.A. system. The second criticism of I.T.A. was answered by Downing in a rather lengthy explanation of the system by which the children are trained to form the I.T.A. characters.

According to Downing (21), the results of a longitudinal British study, begun in 1961, have shown that children using I.T.A. recognize more words in print, comprehend more continuous prose in print, read faster and more accurately, and progress through reading instruction more rapidly than children using the conventional type of basal reading program. Head teachers at the experimental English schools have reported that the I.T.A. medium appears to have raised the beginner's level of self-confidence, increased their enthusiasm for, and interest in independent reading, allowed the children to be more independent in their work, resulted in a marked improvement in creative writing, and permitted children's thoughts to flow more naturally.

After one year of an I.T.A. study conducted in Bethlehem, Pennsylvania, Mazurkiewicz (40) reported generally favorable conclusions in favor of his experimental (I.T.A.) group over his control group. However, in a discussion of the results of the same I.T.A. program after two years of the study in Bethlehem, Stewart (61) presented generally inconclusive results. At that time there was no particular statistically significant advantage for either the I.T.A. groups or the groups which learned to read by means of traditional basal readers.

A study done by Chasnoff (17), in which the teacher variable was controlled, yielded scores for the total experimental group significantly higher in word reading, word study, and spelling, with respect to scores on the Stanford, Form W, when the experimental group was tested with a test transliterated into I.T.A. and the control group tested by the same test in traditional orthography. On the Stanford, Form X, no significant differences were indicated with respect to scores gained on tests with all subjects taking the tests in traditional orthography. On a comparison of scores assigned to 616 writing samples gained from the total population, the differences of means for the experimental group was significantly higher at the .01 level. The scores generally appear to give an advantage to the total experimental group, especially to subjects from three particular schools involved in the study, and also to children who scored 35 to 44 on the California Test of Mental Maturity.

The results of many of the I.T.A. studies to date have been favorable for the I.T.A. groups. Most researchers recognize the need for follow-up studies on the effects of I.T.A.

Phonic Methods

Some confusion exists as to the meanings of the terms phonics and phonetics. Often these terms are used interchangeably in discussions of reading instruction practices. Phonics is a term for the practices of teaching reading in which individual letters of the alphabet are matched with the specific sounds of English pronunciation. Phonetics, on the other hand, is the process of systematic analysis and description of the vocal sounds, or phonetic features, of a language. It must be remembered, however, that the terms phonics, phonetics, or phonetic methods often refer to an entire method of teaching reading, supplementary teaching of phonics as an area of study in its own right, or the teaching of phonics as a part of another method.

Phonics can be further classified as either synthetic or analytic. The synthetic method is based upon the belief that the child should be taught certain letter-sound relationships of word elements before beginning to read, and then be taught to synthesize word elements learned into whole words. Most older methods of teaching phonics were usually synthetic. The analytic method is based upon the belief that children should be taught whole words and then, through various analytic techniques, be taught to apply letter combinations learned in familiar words to sounding out new words.

There is no paucity of literature concerning the use of phonics in teaching beginning reading. In 1958, at the University of Pittsburgh, Morrone (44) reviewed 198 references on phonics for a doctoral study. He suggested that no incontrovertible evidence was revealed by scientific investigations of phonics in reading and spelling. Morrone further stated:

> Disagreement exists as to the approach and amount of phonic instruction teachers should utilize in reading; however, most of the scientifically accurate experiments show that phonics has considerable value to the learner in the reading process. (44:14)

Harrington and Durrell (52) concluded that "auditory and visual discrimination and phonic ability are more important than mental age for learning to read." Gates and Russell (27) concluded that a program containing little or no phonetic analysis was not as good as one which contained moderate amounts of informal word analysis. They also concluded that a moderate amount of informal word analysis made a better program than one which contained large amounts of drill-type phonics. In a study of the Carden method of teaching phonics, Gates stated,

> The findings of this study do not suggest that teaching phonics is futile or unnecessary. They show merely that the much less complex and less rigid programs employed in most American schools during the past decade produce reading abilities equal to, or somewhat better, than the Carden system in much less time and with less effort. (25)

Rudisill (51), in a study designed to investigate the interrelations between phonic knowledge, reading achievement, spelling achievement, and mental age, found that a knowledge of phonics makes a substantial contribution to achievement in reading. Henderson (36), in reporting the Champaign study, suggested that a phonics approach has great advantages over a non-phonic or look-say approach.

In a study designed to determine what relationships exist between phonic ability and reading ability, Tiffin and McKinnis (67) tested 155 pupils in grades five, six, seven, and eight on the Iowa Silent Reading Test and the New Stanford Reading Test. An individual phonic test using nonsense words was also administered. The investigators concluded that phonic ability is significantly related to reading ability, and that a reading program should include direct or indirect instruction in the principles of phonics.

Few research studies have been reported condemning phonics. Two such studies were reviewed in a publication issued in 1963 by the University of the State of New York (1). The first of these studies was reported by Dumville in 1912. In his study, Dumville used only thirty-six elementary school children about whom he reports no information concerning mental age, chronological age, sex, or any of the other background information usually considered necessary in such an experiment today. In Dumville's experiment the children were divided into two groups, a phonics groups and a look-and-say group.

> The look-and-say group was given a list of words in phonetic transcript and regular spelling and told to learn them as whole words. The phonics group was given a table of phonetic symbols, their sounds, and sample words in phonetic transcript.

> They were also given the same list of words in phonetic spelling and regular spelling. Both groups were given 15 minutes to learn the words, the former group learning whole words with the latter applying word-analysis. They then had a practice test. The final tests were two extracts written in phonetic symbols; one contained the words on the list and the other was totally unfamiliar. Each student was tested individually for speed and number of mistakes. The results showed that the group using the look-and-say method was better on both tests in speed and lack of errors. (1:5-6)

Obviously, the results of Dumville's experiment are somewhat questionable. The other study mentioned above was done by Mosher and Newhall and reported in 1930. This study, though better designed than Dumville's, was also open to question. The investigators concluded "that the differences were not significant enough to warrant spending time on phonics." (1:7)

In a comparative study, Sparks and Fay (58) concluded that at the end of grade one, the Phonetic Keys to Reading method produced superior results in comprehension and vocabulary over a basal reading program. At the end of grade two, the phonic method led to superior results in comprehension only. However, at the end of grade four no significant differences were found between the two groups in reading comprehension, vocabulary, or speed. At this time the basic reading group was superior in reading accuracy. Sparks and Fay concluded that neither method was superior to the other.

In a study by Buswell (14), an elaborate phonic method was contrasted with another method emphasizing thoughtful reading attitude and meaningful experience. He found that the phonic method promoted progress in the ability to follow the lines and pronounce the words, but it did not create a vital concern for the content. The method emphasizing thoughtful reading attitude and meaningful experience promoted a keen interest in the content, but slower progress was noted in word recognition and in the ability to follow the lines.

McDowell (42) compared five schools using a synthetic phonic approach with five schools using a basal reading approach where phonics were taught as a part of the word attack skills. Using matched pairs, McDowell tested the children on the Iowa Silent Reading Test and the Metropolitan Achievement Battery. On the Iowa test the basal group obtained better scores on all measures except Directed Reading and Alphabetizing. Significant differences favoring the basal group were found on Word Meaning and in the medial reading scores. Significant differences favoring the phonics group were found in Alphabetizing. No significant differences were found on the Metropolitan tests in reading, vocabulary, and language. McDowell also compared pupils who had missed the first five months of phonics instruction with a matched group who had had the entire phonics program. Scores on the Iowa Test showed no significant differences in the two groups. McDowell concluded that the phonics program was not accomplishing the results it is said to accomplish.

In a study of Phillipine children, Tensuan and Davis (34) compared a phonic method (called a "cartilla" method which involved learning grapheme-phoneme associations) with a "combination" method (a multiple approach similar to basal programs used in the United States). In the phonics approach, pupils were first taught the sound of letters and diphthongs and next to identify sounds and words and to blend sounds. In the "combination" approach, interest in word knowledge was first aroused and whole words associated with their meanings, after which letters and diphthongs were associated with the sounds and words that the pupil was already reading by sight. The expected difference was in favor of the cartilla method because there is a close correspondence between graphemes and phonemes in the Filipino language. No significant differences were found between the two groups on paragraph comprehension or language usage. The differences found, though not significant, favored the combination method.

Tate (65), in a rather limited study, compared two groups matched in chronological age, mental age, and I.Q. One of the groups was taught phonics in thirty minute drill periods while the other group had drill in word recognition and other skills. Both groups were using an identical basic reading series for reading instruction. The results showed that the phonics group made greater gains in word recognition while the other group gained more in word, phrase, and sentence reading, and in reading directions. From his data, Tate concluded that overemphasis upon phonics interferes with comprehension and that formal phonics drill is undesirable.

In a longitudinal study comparing synthetic and analytic approaches to teaching phonics, Bear (10) found that after one year of reading instruction, differences in performance on the Gates Primary Reading Tests and the Metropolitan Achievement Test favored the group using the synthetic method. A follow-up study of the pupils, after they had completed the sixth grade, found that the group which had utilized the synthetic method of phonics in the first grade was significantly superior in performance on the vocabulary section of the Gates Reading Survey, although no differences were found between the groups on the comprehension and speed sections of the test.

In another recent study, Bleismer and Yarborough (11) concluded that the synthetic approach tended to be significantly more productive in terms of specific reading achievement than did the analytic approach.

Agnew (2), working with children in Durham and Raleigh, North Carolina, used matched pairs to compare results of a program which stressed phonics (Durham) with a program which did not stress phonics (Raleigh). On Gates' four tests of phonetic ability, the Gates Word Pronunciation Test, Pressey Diagnostic Test--Vocabulary, Gray Oral Check Tests, and the Eye-Voice Span Test, the pupils from the program which stressed phonics were superior. On the Gates Silent Reading Tests, the groups were approximately equal, with a slight superiority of those in the stressed phonics program. The pupils from the stressed phonics program appeared to be slower in oral reading but more accurate. Agnew concluded:

> If the basic purpose in the teaching of primary reading is the establishment of skills measured in this study (namely: independence in word recognition, ability to work out the sounds of new words, efficiency in word pronounciation, accuracy in oral reading, certain abilities in silent reading, and the ability to recognize a large vocabulary of written words), the investigations would support a policy of large amounts of phonetic training. (2)

In reviewing research on teaching reading, Russell and Fea concluded:

> The many "phonics versus whole-word" experiments in teaching have contained uncontrolled variables. Experiments designed to determine the relative effectiveness of different amounts of phonics, or the value of phonics at different maturational levels, have been more successful. (52:875)

Dolch and Bloomster (20) studied the correlation between phonics and mental ability. They concluded that the application of phonic principles required higher mental development than the memorization of sight words. Their results showed that children below the mental age of seven years made only chance scores on Tests 1 and 2 of the Basic Reading Tests, Word Attack Series and concluded "as far as this experiment indicates, a mental age of seven years seems to be the lowest at which a child can be expected to use phonics, even in the simple situations provided by these two tests."

On the other hand, Olson (45), after testing first grade children in September, November, and February and comparing results, concluded there is no support for the assumption that a mental age of seven is necessary for the use of phonics.

Linguistic Methods

Recently, linguists have been attempting to apply their scientific knowledge of language to reading by suggesting linguistic generalizations which they believe are applicable to reading. Bloomfield and Barnhart (13) developed a system in which they systematically introduced the children to the written symbols that represent specific phonemes. Fries (24) has developed an approach to teaching reading which he calls "linguistically sound." In his approach, Fries stresses contrastive patterns of letters in words that function in consistent ways. Fries stated that a "structural base that constitutes the essential feature of every part of language" exists. He further stated ". . . structuralism not only requires us to abandon our word-centered thinking about language; it demands that in every aspect of language we must shift from an item-centered view to one that is structure-centered." (24:64)

Strickland (62) has interpreted linguistics to mean that 1) the whole-word meaning approach without teaching the spoken linguistic forms symbolized by written shapes is wrong, 2) sounds are represented by letters and not letters by sounds, and 3) reading textbook writers need to give more attention to sentence structure, and systematic progress in sentence structure, and systematic progress in sentence difficulty.

Sister Mary Fidelia (57), in a comparative study of a linguistic approach, based upon the work of Bloomfield, and a phonics approach using a series of phonics workbooks called Phonics We Use, both groups also using a basal reading series, found no significant differences in reading achievement between the two groups.

Sister Mary Edward (56) attempted to answer the question of whether introducing only regularly represented words in the early stages of reading is wise in light of the multitude of inconsistencies which the child will encounter in later reading. She compared groups of fourth grade pupils from parochial schools in Detroit, Michigan, and Dubuque, Iowa. One group used a composite basal method alone, while the other used a modified linguistic method in addition to a composite basal approach. In the modified linguistic approach, word recognition was begun with learning the alphabet and proceeded from sets of words and syllables with regular phoneme-grapheme relationships to more irregularly spelled words. Sister Mary Edward found that the group using the linguistic materials in addition to the basal program performed significantly better on a majority of the reading tests administered. The author did hypothesize, however, as to factors other than the modified linguistic material which may have been responsible for this superior achievement.

In a study on linguistics and reading, Goldberg and Rasmussen (29) reported favorably on a "linguistic or phonemic-word" approach.

A number of studies have been done in attempts to discover a relation between reading and language structure. Gibbons (28) noted that a close association existed between the reading level of children and their ability to understand the structure of sentences. MacKinnon (39) found that beginning readers attempted to substitute syntactic patterns which they had previously read and with which they were familiar in place of unfamiliar patterns in attempting to decode new reading material.

In a comparative analysis of pupils' oral language patterns and the language patterns expressed in basal readers, Strickland (63) concluded that pupils' language patterns are much more varied than patterns found in basal readers. She also reported that children who ranked high in silent reading comprehension made more use of common structural patterns, movables, and elements of subordination and elaboration than did children who ranked low on these variables.

Ruddell (50) found that children's reading comprehension scores, at the fourth grade level, are significantly higher on reading passages using only high frequency patterns of their oral language structure when compared to reading passages encompassing only low frequency patterns of their oral language structure.

Davis (19) reported a comparative study involving a linguistic approach to first grade reading instruction. Two of four groups used a basal reader program with a supplement of one hundred eleven daily lessons in linguistics. The other two groups spent an equal amount of time on only the basal reading program. The linguistic lessons involved seventy-three lessons in methods of word recognition applying phonemic-graphemic analysis, twenty lessons in identification of writing systems, fifteen lessons on the alphabetical principle of writing, and five lessons on the structural patterns of written American alphabetical language. The investigator found significant differences in favor of the experimental groups on a battery of tests at the conclusion of the experiment.

Individualized Methods

Rather than a single method, individualized reading programs are characterized by a multiple approach in which the teacher chooses his method or methods according to the child. No attempt is made to force predetermined standards upon the children and each child is to progress at his own rate. The classroom organization is such that the child receives more individual attention concerning his reading problems. Individualized reading does not mean complete elimination of group procedures. The choice between individual and group procedures is governed by the purposes of the reading being done at the time. The initial stages of the individualized approach are comprised of conversation, storytelling, reading aloud, and possibly an approach similar to basal reading approaches. As the children gain some fluency in reading, a variety of books chosen to suit a wide range of ability levels and interests is provided and, with the assistance of the teacher, the children choose from these according to their readiness, needs, and interests. Opinions of the value of the individualized reading programs are conflicting. There isn't a great deal of research evidence available concerning this method.

Gates and others (30), in an early study compared the relative merits of a systematic method and an opportunistic one in which the reading instruction was highly individualized. In respect to silent and oral reading, the investigators found that the results favored the systematic approach. However, the results also appeared to indicate that the method with highly individualized reading instruction was advantageous in respect to the development of interest, initiative, determination, and other personal and social traits.

In 1956, Anderson and others (6) compared one group using highly individualized methods with another using a systematic basal approach. The children in the individualized methods group were introduced to reading when they were ready for it, and were permitted to choose the books that were read. Some use of basal readers was made with the individualized group, but they were not followed systematically. The individualized methods were used in a laboratory school where the average IQ was ten points higher than the public school group using the systematic basal approach. The investigators concluded that "the systematic approach employed by the public schools enables the children to learn to read early and reduces the individual variation in age of learning to read." (6:107) The mentally superior group did not overtake the public-school group until they were 132 months of age, on the average.

In a study of primary reading instruction patterns, Sperry (59) concluded that individualized reading classes showed significantly higher reading achievement than classes grouped by ability.

In a comparative study at the second grade level, McCristy (4) found the four classes in her experimental group (individualized method) were superior in total reading gains, vocabulary growth, and comprehension to the four classes in her control group (ability grouping).

In an investigation of individualized reading and the basal approach with primary children, Carline (15) found no significant differences between the two approaches. Sartain (54), in comparing the progress in reading skills of second graders taught by an individualized approach with those taught by a basal reader method, found significant differences between methods only for pupils of lower ability whose gains on word-recognition tests under the basal approach were superior to the gains made by lower ability pupils under an individualized approach. The methods were reversed after three months, according to the design of the study, allowing the investigator to find that significantly greater gains were made during the first three months of school, regardless of method employed.

Safford (51) conducted a study of individualized reading involving seven classes in grades three through six. Results on the California Achievement Test Battery, administered at the end of the experimental period, showed the classes made gains considerably below national or district norms. Safford concluded that for the majority of pupils in the classes involved, individualized reading resulted in lower gains, and that the use of self-selected reading methods achieved no significantly different results with pupils of high ability or those with average ability.

Zirbes and others (69) studied extensive individual reading instruction with short comprehension checks as compared with independent silent reading with second graders. The investigators found that the average growth in reading was about the same for both groups. The authors also concluded that the more intelligent children profited more from the independent silent reading while the slower children profited more from intensive instruction.

Language Experience Methods

The language experience approach to teaching beginning reading is an attempt to bring the communication or language arts skills (speaking, listening, writing, and reading) together as a unit. According to R. V. Allen, "The 'togetherness' of skill development makes possible the continuing use of each child's own experience background and thinking as he grows toward reading maturity." (3) The program is built upon a frame work of experiences resulting in pupil and teacher-made materials. The concept underlying the program is that children's language development proceeds from oral expression through written expression thus creating high motivation for reading one's own materials and easy transfer to reading what others have written. Allen stated, "Utilization of the child's language as a basis of reading instruction results in a high degree of independence in writing and reading." (3 :63)

The language experience approach rejects the idea of a controlled vocabulary for beginning readers, and the development of a basic sight vocabulary is considered an individual matter based upon the child's oral expression. "The direct teaching program for phonics and other word recognition skills is more closely related to the writing and spelling activities where children are dealing with the language letter by letter, syllable by syllable, and word by word." (3 :64) It is claimed that dictation and writing of their own stories enables children to recognize enough words that they can read material written by others. As the children develop their skill in reading they select their own reading material.

There is evidence concerning the interrelationship of all the communication skills (speaking, listening, writing, and reading) and this is acknowledged by most reading authorities regardless of the approach they advocate for beginning reading instruction. Gray (30) summarized the situation as follows:

> Summaries of research by Hildreth and by other specialists have shown that reading and the other language arts are closely interrelated in many important respects. It has been proposed, therefore, that instruction in all the language arts should be provided in a closely integrated program. Although many efforts have been made to develop such a program, no carefully controlled studies of its advantages and limitations have been reported. (30:1117)

Loban (38) concluded from his longitudinal study of children's language that the children who were high in general language ability, based on teacher's ratings of oral language and vocabulary scores, were also high in reading ability. The children who were low in general language ability were also low in reading ability.

In a five year comparative study of the basic approach, individualized approach, and the language experience approach, R. V. Allen (4) found that children taught by the language experience approach made as much as or more progress in reading, as measured on standardized tests, than did pupils taught through individualized and basic approaches.

Sex Differences and Reading

Research evidence concerning sex differences in reading achievement generally favors the girls. There are numerous theories as to the cause of these results, but to date, there has been no conclusive evidence as to the causes of these differences.

Balow (8), in a study of 151 girls and 151 boys with equivalent mean I.Q.'s, found that the girls were superior to the boys in a reading readiness test. However, when reading readiness was held constant using an analysis of covariance, he found no significant differences between the reading achievement of boys and girls at the end of grade one. Balow inferred from this study that the data supported the nonmaturational, cultural theory of sex differences in reading achievement because perception and readiness appear to be affected by training.

In a study of sex differences in reading readiness at the first grade level, Carroll (16) found that girls were slightly superior to boys in tests of visual, auditory, language, and articulation ability, and of ability to name letters.

Gates (26) studied sex differences in reading ability of 13,114 subjects (6,646 boys and 6,648 girls) in grades two through eight in twelve school systems and in ten states. On twenty-one comparisons made on tests of speed, vocabulary, and level of comprehension, the mean raw scores for girls were higher than those for boys. Gates concluded that on the average, girls' reading abilities exceeded those of boys. He commented that maturity did not explain the superiority of the girls because, in his study, the girls were superior in the upper grades as well as in the lower ones. Environmental rather than hereditary factors were suggested as causes for the differences in achievement.

As a group, the boys among 1500 second grade pupils studied by Pauley (46) were two months older chronologically than the girls, but their mean reading achievement was two months below that of the girls.

Templin (66) reported that girls were superior in articulation and sound discrimination at the age of eight while boys were superior in vocabulary at the ages of six to eight. Few significant differences were apparent between boys and girls at the ages of three through five years.

More boys than girls become remedial reading cases as shown by Heilman (35:356) who reported the following data from a number of studies showing the percentage of boys and girls referred as remedial reading cases:

Study	Date	No. of Cases		Per Cent	
		Boys	Girls	Boys	Girls
Blanchard	1936	63	10	86	14
Young	1938	37	4	90	10
Preston	1940	72	28	72	28
Missildine	1946	25	5	83	17
McCollum & Shapiro	1947	31	9	76	24
Axline	1947	28	9	76	24
Vorhaus	1952	178	47	80	20
Johnson	1955	23	11	67	33
Fry	1959	163	39	81	19

In a study of reading achievement of German and American children, Preston (48) matched 1,338 children in Philadelphia with 1,053 children in Wiesbaden, Germany. The children were matched on intelligence, parental occupations, and instructional level. The children were tested using crosstranslations on the Gates Reading Survey and the Frankfurter Test. Preston reported the German children were generally lower in comprehension than the American children. However, the difference was less at the sixth grade than at the fourth grade, and there was no difference for the sixth grade boys. German boys were superior to German girls in reading ability, adding support to the theory that environmental conditions are causing the sex differences favoring girls in America.

Waetjen and Grambs (68) have suggested that schools reward verbal comprehension and language skill, consequently reinforcing girls' greater facility with language. As a result of receiving little reward, the boys feel negative about their adequacy with language skills. Thus, language activities become identified as girl-like activities with the result that boys cannot then participate as fully as they might have in activities involving language.

Summary

It is evident, from the perusal of the studies reviewed in this chapter, that little conclusive evidence has been reported concerning the comparative efficiency of the methods which have concerned us. Some of the methods with which this report is concerned are new approaches and have not been thoroughly researched. In reviewing these studies, the experimental methods are often variations of a general class of methods and not totally equivalent, limiting the comparability of the conclusions reported. There is also the limitation of the effect of uncontrolled variables which may have confounded the results reported in some of the studies.

Most of the material concerning I.T.A., a more recent innovation in the teaching of beginning reading, has been written by Downing, the major investigator of I.T.A. experiments in British schools. Mazurkiewicz has been mainly responsible for American studies of I.T.A. More research evidence is necessary before a definite conclusion can be made concerning the effectiveness of using I.T.A. in beginning reading instruction.

From the evidence reported concerning the use of phonics in teaching children to read, there can be little doubt that phonics should be an important part of the reading program. However, there is disagreement on the type of phonic approach which should be used, and on the amount of phonics which should be included in the reading program. It seems apparent, from the studies reviewed, that phonics does not contribute much to children's comprehension of what is read.

Not a great deal of research evidence has been reported concerning the use of linguistic methods of teaching reading. The studies which have been done indicate there is value in the use of linguistic principles in designing a reading program. There is some indication that sentence structure should receive more consideration in the construction of reading materials. More research is needed concerning the use of linguistic principles in the teaching of reading.

Inconclusive and conflicting evidence has been reported concerning the use of individualized methods in beginning instruction in reading. There is some evidence to indicate that individualized methods may be more valuable for high ability children and that it may result in higher motivation and interest on the part of the children.

There is little doubt that reading and other language skills are related. However, the research evidence concerning the value of language experience methods is sparse and more research is needed before any conclusions can be drawn.

It is a fairly well established conclusion that girls are superior to boys in reading achievement as well as general language ability. There is some doubt, however, as to the causes for sex differences in reading. In this regard, there is some evidence to support the theory that the causes of sex differences in reading are related to environmental conditions within our society and our schools.

In conclusion, the superiority of a single method of reading instruction is yet to be determined. It appears that a composite of methods would produce the best results and that an effort should be made to determine what each method would contribute to the reading program.

CHAPTER III

AN OVERVIEW OF THE INDIVIDUAL STUDIES

Each of the twenty-seven studies which comprised the Cooperative Research Program in First-Grade Reading Instruction was a complete study in itself. Each was selected on the basis of its potential for yielding valuable information about the teaching of beginning reading. The unique characteristic of this study, however, was that each project director, in addition to carrying out his own analysis, made the data available to the Coordinating Center so that an analysis across projects could be conducted. Most of the projects investigated instructional methodology and the evaluation of method is the major focus of this report. However, a number of projects concerned themselves with aspects of the instructional program in beginning reading other than methodology.

Some studies not concerned with instructional materials investigated various grouping plans. One project evaluated the relative effectiveness of a "whole-class" system in which all pupils in the room met as a single group. This approach had the proposed advantage of increasing each child's contact time with the teacher since she didn't have to divide her time among three groups. Another researcher investigated the effectiveness of grouping beginning readers by sex on the assumption that girls constitute unfair competition and tend to dominate the typical heterosexual reading group.

Other projects in the study investigated various devices for helping the beginning teacher of reading. One project studied the effect of an intensive in-service program on teachers' classroom behavior and reading achievement of pupils taught by the experimental teachers. The in-service program consisted of a two week pre-school seminar and twenty-five two-hour seminar sessions held during the first thirty weeks of the school year. Another study sought to determine the feasibility of improving the reading achievement of first-grade children by utilizing consultants in two different ways. One approach used the typical technique of consultant help on a one-to-one basis in which the consultant answers a request for her services from the teacher or building principal. In the other method the consultant brought together teachers with common problems such as those found in first grade reading instruction in scheduled meetings on released time. This approach was designed to foster interaction among the teachers. Still another study evaluated the effectiveness of bi-weekly in-service reading seminars for first-grade teachers.

In the following sections of this chapter, a brief overview of each of the twenty-seven projects is presented. The wide range of problems in beginning reading which were investigated in this Cooperative Research Study will be readily apparent.

An Evaluation of Three Approaches to Teaching Reading in First Grade: Project 2719; Elizabeth Ann Bordeaux, Director; Goldsboro City Schools, Goldsboro, North Carolina.

The project was an attempt to identify the most effective of three methods of teaching reading to first grade children. Twenty-seven first grade classes in the Goldsboro City Schools were divided into three groups of nine each.

All groups used the North Carolina basal text program--the Scott-Foresman series. Group A, considered the control group, used only materials being used at the time the study began. Group B, in addition to the basal text program, used an intensive phonetic approach. Group C used both the basal program and the intensive phonetic approach plus a sensory experience approach.

A Study in Depth of First-Grade Reading: Project 2728; Jeanne S. Chall, Director; The City College of the City University of New York.

The project investigated the effect of interactions between: (1) the published reading program; (2) the teacher's implementation and understanding of that program; and (3) the varying characteristics of the pupils, on various components of reading achievement.

Children from twelve first-grade classes in socially disadvantaged neighborhoods in New York City were involved in this study. Fourteen teachers participated, including two teachers who replaced two others who left during the study. The teachers who were chosen for the sample had indicated their beliefs and practices concerning the teaching of reading in the first grade on a questionnaire given them prior to the study. The sample of teachers chosen for the study represented equal numbers of meaning and sound-symbol emphasis teachers as well as experienced and inexperienced teachers within each emphasis. All of the teachers followed the reading programs they had used in previous years, which were eclectic basal reader approaches.

Four teachers were observed once a week; the other eight were observed once a month for the eight months' period. Ratings of teacher characteristics and practices in teaching reading were made for each observed lesson, using a Classroom Observation Inventory constructed for the study. In addition, an interview was conducted with each teacher to obtain more information about her reading practices and procedures.

The relationships of the children's initial skills and abilities, the professed methods used, and the teacher's implementation of those methods to the final reading achievement measures were analyzed.

Comparison of the Basal and the Coordinated Language-Experience Approaches in First Grade Reading Instruction: Project 2729; Donald L. Cleland, Director; University of Pittsburgh.

The objective of the project was to determine the effects and outcomes of teaching beginning reading to superior pupils from three levels of social strata by two different methods. The study included superior pupils assigned to twenty-four classrooms. Twelve classes used the basal reader approach to first grade reading instruction and twelve classes used the coordinated language-experience approach.

Supplementary materials to enrich the program for superior pupils were used in the group using the basal reader approach. The coordinated language-experience approach emphasized oral expression of ideas and utilized the stories told by the children, retaining as nearly as possible the language patterns of the children. Later in the program, self-selection of reading materials was permitted and use was made of teacher-made worksheets and programed self-corrective type materials for reinforcement of needed skills.

First Grade Reading Instruction Using Diacritical Marking System, Initial Teaching Alphabet and Basal Reading System: Project 2745; Edward B. Fry, Director; Rutgers-The State University, New Brunswick, New Jersey.

This project compared three methods of beginning reading instruction using twenty-one first grade classrooms from three middle class suburban school districts in central New Jersey. Two of the methods under investigation were a diacritical marking system, developed by the principal investigator, and the Initial Teaching Alphabet--writing systems which offered greater regularity than the traditional writing system. The material for the third method was a traditional set of basic reading texts.

The materials used for the I.T.A. group were the Early To Read Series by Albert Mazurkiewicz and Harold Tanyzer. The Diacritical Marking System classes used the Sheldon Readers with diacritical marks superimposed on the words. The traditional set of basic reading texts used was the Sheldon Readers.

A Study of the Relative Effectiveness of Three Methods of Teaching Reading in Grade One: Project 2687; Harry T. Hahn, Director; Oakland Schools, Pontiac, Michigan.

This study was designed to test the effectiveness of three approaches to teaching first grade reading: the language arts approach, the Initial Teaching Alphabet, and the basic reader approach. In twelve school districts one classroom was assigned to each of the three approaches. Thus the study comprised thirty-six classrooms in which children were matched on the basis of performance demonstrated in kindergarten as well as on socio-economic status.

The language arts approach encouraged individual expression through a variety of media. After a firm language-experience relationship was established, a balance of directed group reading and individualized reading was included. The I.T.A. approach employed materials prepared for schools in England plus some structured materials prepared from Initial Teaching Alphabet Publications, Inc. The basic reader approach used controlled vocabulary and systematic instruction procedures in basic reading texts and workbooks normally found in a first grade classroom.

Comparing Reading Approaches in First-Grade Teaching with Disadvantaged Children (The CRAFT Project): Project 2677; Albert J. Harris and Blanche L. Serwer, Investigators; The Research Foundation of The City University of New York.

The project compared the relative effectiveness of two major approaches to teaching reading to disadvantaged urban children: (1) the skills-centered approach, and (2) the language-experience approach. Each of these was tried with two variations, making four treatment methods in all. These four treatment methods were as follows: (a) a skills-centered method using basal readers, with close adherence to the instructions contained in the teacher's manuals; (b) a skills-centered method utilizing basal readers, but substituting the phonovisual method of teaching word-attack skills for the word-attack lessons accompanying the basal reader; (c) a language-experience method, in which the beginning reading materials were developed from the oral language of the children; and (d) a language-experience method with heavy supplementation of audio-visual procedures.

Twelve elementary schools, each with a very high percentage of Negro children and a minimum of six first-grade classes, were selected for the study. There was random assignment of the four methods to schools, two methods to each school.

An Attempt to Secure Additional Evidence Concerning Factors Affecting Learning to Read: Project 2697; Robert B. Hayes, Director; Department of Public Instruction, Harrisburg, Pennsylvania.

The project sought to refine, extend, and strengthen knowledge of beginning reading by comparing methods and materials in four approaches. The four programs and the materials used were: (1) an eclectic, "whole word" reading program as represented by the Scott, Foresman Company, 1960 edition; (2) a "phonic" reading program as represented by the J. B. Lippincott Company, 1963 edition; (3) a combination eclectic, "whole word-phonic" reading program as represented by Scott, Foresman materials, 1960 edition, supplemented with the Phonics and Word Power, 1964 edition; (4) a language arts approach using the initial teaching alphabet as a medium, represented by the i/t/a Publications, Inc., 1963 edition.

Ten elementary schools and twenty first grades were selected for the study.

Effects of an Intensive In-Service Program on Teacher's Classroom Behavior and Pupil's Reading Achievement: Project 2709; Arthur W. Heilman, Director; The Pennsylvania State University, University Park, Pennsylvania.

This project studied the effects of an intensive in-service program on (1) teachers' classroom behavior and (2) reading achievement of pupils taught by participating teachers.

Thirty first grade teachers of the Williamsport, Pennsylvania, public school volunteered for the experiment. Half of the group was selected at random to serve as the experimental group and the remaining group of teachers served as the control group.

The teachers in the experimental group (1) attended and participated in a two week pre-school seminar and (2) attended and participated in 25 two-hour seminar sessions held during the first thirty weeks of the school year. The pre-school seminar was devoted to examining research and the implications of research for first grade teachers. The weekly meetings were devoted to sharing teaching techniques and diagnostic procedures.

A Comparison Between the Effect of Intensive Oral-Aural Spanish Language Instruction and Intensive Oral-Aural English Language Instruction on the Reading Readiness of Spanish-speaking School Beginners in Grade One: Project 2648; Thomas D. Horn, Director; The University of Texas, Austin, Texas.

This study tested the hypothesis of no difference among the effects of three kinds of oral language instruction on the reading readiness of Spanish-speaking grade one pupils. The treatment groups were (1) oral-aural English intensive language instruction, (2) oral-aural Spanish intensive language instruction, and (3) no intensive oral-aural language instruction.

Twenty-eight classes were arbitrarily assigned to one of the three treatments: nine to oral-aural English, ten to oral-aural Spanish, and nine to no oral-aural treatment.

The first method involved intensive oral-aural English instruction one hour each day--thirty minutes by demonstrator and thirty minutes by teacher. The second method concentrated on oral-aural Spanish intensive instruction one hour per day with the same division of time. Each of these methods was used in place of the usual one hour pre-readiness instruction. The third group, considered the control group, received no intensive oral-aural instruction.

A Comparative Study of Two First Grade Language Arts Programs: Project 2576; William M. Kendrick, Director; Department of Education, San Diego County, San Diego, California.

This study sought to determine the relative effectiveness of the experience approach to the teaching of the language arts as compared with the traditional method. To accomplish this, four areas of the language arts were separately measured--namely, reading, writing, listening, and speaking. In addition, an index of development in reading interest was taken and pupil attitude toward reading determined.

The experience approach used the language and thinking of individual children as the basis for skill development. The traditional method group adhered very closely to the teacher's manual for each reader in the Ginn Series as a guide to instructional procedures. Fifty-four teachers, twenty-seven for each treatment group, participated in the study. The pupil population of the study came from forty-one elementary schools of seventeen school districts located in various parts of San Diego County.

An Experimental Study of the Group versus the One-to-One Instructional Relationship in First Grade Basal Reading Programs: Project 2674; James B. Macdonald, Director; The University of Wisconsin, Madison, Wisconsin.

This study was designed to compare the effects of ability grouping with a one-to-one instructional relationship in beginning reading instruction. Seventeen classrooms, seven experimental and ten control, were involved in the project.

After the usual readiness program was completed, one group instituted a one-to-one relationship while the other used ability grouping. Both groups employed typical basal materials.

Evaluation of Level Designed Visual-Auditory and Related Writing Methods of Reading Instruction in Grade One: Project 2650; John C. Manning, Director; Fresno State College, Fresno, California.

This project compared the effectiveness of materials and techniques which were programmed at various ability levels on pupil reading achievement in grade one. Thirty-six classes were utilized in the study, thirteen, twelve, and eleven classrooms in treatment groups I, II, and III respectively.

In the first treatment group, the teacher's manual accompanying the Ginn Basic Reading Series was used to develop the instructional materials. With the second group, basic visual and auditory discrimination skills in letter knowledge, word recognition, word meaning, and word analysis were stressed and subsequent reading instruction was programmed in a levels design using the Ginn Series for vocabulary and story content only. In addition to the basic reading program used with the second group, written language procedures were used with the third group. A ten level design allowing for maximum learning rate differences was followed in the latter group.

A Comparative Study of Reading Achievement Under Three Types of Reading Systems at the First Grade Level: Project 2659; Sister M. Marita, Director; Marquette University, Milwaukee, Wisconsin.

The types of reading systems compared in this study were a basal approach using three to five groups within a class, an individualized approach in which sight vocabulary is built through experience charts and reading proceeds through self-selection of books and individual conferences with the teacher, and an experimental approach which was a modification and combination of the language-experience and the basal approaches. In the experimental approach provision for individual differences was made through independent reading, more intensive instruction when needed, and other enrichment activities. Thirty classes from the Milwaukee suburban public schools constituted the sample for this study. Ten classes were used for each of the three systems under investigation.

First Grade Reading Using Modified Co-Basal Versus the Initial Teaching Alphabet: Project 2676; Albert J. Mazurkiewicz, Director; Lehigh University, Bethlehem, Pennsylvania.

This project compared reading achievement at the end of first grade of two matched groups. Both groups used the language arts approach: one used co-basal materials printed in traditional orthography while the other used the Initial Teaching Alphabet materials. The study included thirty first grade classrooms divided into two groups of fifteen classes each matched on the basis of intelligence.

The hypothesis tested was that method rather than medium is responsible for the differences in reading achievement, and that if method is controlled no significant differences in reading achievement would be found.

A Study of Approaches to First Grade English Reading Instruction for Children from Spanish-Speaking Homes: Project 2734; Roy McCanne, Director; Colorado State Department of Education, Denver, Colorado.

The major objectives of the study were (1) to test the hypothesis that there is no difference in achievement in reading English in first grade between pupils who speak Spanish at home and are taught by a conventional English readiness and basal reader approach, such pupils who are taught by a modified TESL (Teaching English as a Second Language) approach, and such pupils who are taught by a language experience approach; and (2) to provide and organize data to aid in determining a specific sequence of skills that is appropriate for first grade children from Spanish-speaking homes who are learning to read in English, and to identify appropriate materials and techniques for teaching these skills in a culturally integrated first grade classroom.

Subjects in this study were non-migrant first-grade children in culturally integrated classrooms containing twelve to twenty children from Spanish-speaking homes plus children from English-speaking homes, making a total class size of twenty-five to thirty pupils.

A Study of Two Methods of Reading Supervision: Project 2706; Katherine A. Morrill, Director; University of Hartford, Hartford, Connecticut.

This study sought to determine the feasibility of improving the reading achievement of first grade children by a change in the role of the reading consultant in her work with teachers. Two methods of consultant help were used. One method was that of a typical consultant role on a one-to-one basis in which the consultant served teachers on request from the teacher directly or from the building principal. The other method was that of a consultant role designed to foster teacher interaction. In this method the consultant brought together teachers with the common problem of first grade reading instruction to share methods, materials, procedures, problems and ideas, in scheduled meetings on released time. It was hoped that the interaction would result in more knowledgeable and more skilled teachers as evidenced by the greater achievement of their pupils. It was also hoped that the study would show that a consultant can serve several teachers at a time in a limited number of sessions, thus increasing her effectiveness beyond that when she works on a one-to-one basis.

The total first grade population of ten elementary schools in Wallingford, Connecticut, comprising 35 first grade classrooms with a like number of teachers was utilized in the study. Seventeen teachers were exposed to the usual consultant procedure, and eighteen teachers were released for one-half day twice a month for a series of meetings with the reading consultant and the other teachers in this group.

Reading Achievement in Relation to Growth in Perception of Word Elements in Three Types of Beginning Reading Instruction: Project 2675; Helen A. Murphy, Director; Boston University, Boston, Massachusetts.

The project examined (1) the relation of perception of word elements to sight vocabulary growth; (2) the effect of early teaching of a speech-based phonics program on reading achievement; and (3) the value of a writing emphasis in the speech-based phonics program.

Three different reading programs were included in the study--each program being used in ten first grade classrooms. One group followed the "gradual phonics approach" found in the Scott-Foresman readers and workbooks. A second group followed the systematic Speech-to-Print Phonics program with visual word study. The third group also used the Speech-to-Print Phonics with an emphasis on writing responses.

The thirty classrooms involved were located in three industrial cities. Five classrooms from each of two communities comprised the population for Treatment A; five other classrooms from each of the same two communities comprised Treatment B; and ten classrooms from a third community furnished the population for Treatment C. Care was taken to include at least three classrooms in each treatment group in "culturally deprived" areas.

Evaluation of Three Methods of Teaching First Grade Reading to Children Likely to Have Difficulty with Reading: Project 2702; Olive S. Niles, Director; Springfield Public Schools; Massachusetts Department of Education, Boston, Massachusetts.

The project attempted to determine whether first grade children who have been identified by a series of tests as likely to have greater than usual problems in learning to read could be helped most effectively by (a) using the regular basal program which is used by all other children in their classroom; (b) using the regular basal program together with remedial teacher time assigned to serve the class of which they are a part; (c) using materials other than the regular basal program which is used by the other children in the class; or (d) using a combination of remedial teacher time and materials other than the regular basal program.

One group had a supplementary remedial teacher. The remedial teacher worked with the regular classroom teacher, giving special attention to children in the potential problem group. Regular basal readers were used.

Another group was provided with special materials for the potential problem group. The children were given thorough instruction with a set of readiness materials. When they achieved success with these, they were put into library-type or trade books rather than basal readers.

The third group was provided with both the additional teacher time and the use of the special materials.

The fourth group was the control group. No changes were made in procedures and the regular basal program was used.

The Effect of Different Approaches of Initial Instruction on the
Reading Achievement of a Selected Group of First Grade Children.
Project 2698; Hale C. Reid, Director; Cedar Rapids Public
Schools; State University of Iowa, Iowa City, Iowa.

In this study, seven methods of teaching reading to the low reading group in forty-five classrooms were compared. In each classroom, an average of eight pupils were in the lowest reading group. The seven methods were

(1) a language method involving reading, writing, listening, and speaking,
(2) a method involving recognition of letters and their sounds and the use of context clues,
(3) a functional approach built around easy-to-read books,
(4) Skills Development Method,
(5) a combination of Method I, language, and Method II, letter sounds,
(6) a combination of Method I, language, and Method III, literature,
(7) a combination of Method I, language, and Method IV, Skills Development.

The Effect of Four Programs of Reading Instruction with Varying
Emphasis on the Regularity of Grapheme-Phoneme Correspondences
and the Relation of Language Structure to Meaning on Achievement
in First Grade Reading. Project 2699; Robert B. Ruddell, Director;
University of California, Berkeley, California.

The primary objective of this study was to investigate the effect on word recognition and reading comprehension of published and specially prepared reading programs varying in (a) the degree of regularity of grapheme-phoneme correspondences programmed into the vocabulary presented and (b) the emphasis on language structure as related to meaning.

Pupils in twenty-four classrooms took part in the study of four reading programs: (1) a program which used a basal reading series with little provision for emphasis on language structure as related to meaning; (2) a program which used a set of programmed reading materials with vocabulary utilizing consistent grapheme-phoneme correspondences to a high degree but placing little emphasis on language structure as related to meaning; (3) a program which used a basal reading series (same as 1 above) supplemented by materials designed to build an awareness and understanding of language structure as related to meaning; and (4) a program which used a set of programmed reading materials (same as 2 above) supplemented by materials designed to build an awareness and understanding of language structure as related to meaning.

A secondary consideration of the investigation involved the study of the relation of selected language and background variables to reading achievement in each of the four programs.

Comparisons of Reading Achievement of First Grade Children Taught by a Linguistic Approach and a Basal Reader Approach: Project 2666; J. Wesley Schneyer, Director; University of Pennsylvania, Philadelphia, Pennsylvania.

This study compared the reading achievement of first grade children taught by the Fries linguistic approach with that of children taught by a basal reader approach. Each group consisted of twelve classes: four of above average, four of average, and four of below average intelligence levels.

The two methods differ in the amount of emphasis given to word discrimination and word meaning. The linguistic approach places emphasis upon the word discrimination principle, which is based upon a mastery of sound-symbol relationships of spoken language as expressed in spelling patterns. The objective of this approach is to develop an automatic response and a rapid recognition on the part of the reader to the words in various major spelling patterns. Irregular or non-patterned words are learned as sight words.

The basal reader places heavy initial emphasis upon meaning. Attention is focused upon regularity of the meaning-frequency-repetition principle, rather than upon regularity of the sound-symbol relationship.

Effect of First Grade Instruction Using Basal Readers, Modified Linguistic Materials and Linguistic Readers: Project 2683; William D. Sheldon, Director; Syracuse University, Syracuse, New York.

This project compared the reading achievements of children taught by three methods of instruction. Twenty-one classrooms were divided among the three methods.

One group used a basal reading program, concentrating on direct small group instruction on children's ability levels at a rate commensurate with their ability to learn. Another group used modified linguistic instruction consisting of materials published by the Singer Company. The series of books progresses in difficulty so that it is possible for teachers to group children for instruction.

The third group used the linguistic approach consisting of the Barnhart-Bloomfield Linguistic Readers. Within each classroom a library of 100 easy-to-read books was installed and children were given the opportunity to practice their reading skills using these materials for 30 minutes each day. The lowest third of each class was presented listening-viewing activities with equipment from a center consisting of a tape recorder, a record player, and a filmstrip projector.

A Study of a Longitudinal First Grade Reading Readiness Program: Project 2742; George D. Spache, Director; Florida State Department of Education, Tallahassee, Florida.

This study sought to determine the effect of an intensified and extended reading readiness program upon first grade reading achievement. The "intensified and extended readiness program" consisted of a plan of instruction which utilized materials that would theoretically contribute to the development of auditory discrimination, visual discrimination, and auditory language ability, and which delayed the induction into formal reading of pupils in the second, third and fourth quarters of the readiness achievement distributions for periods of approximately two, four, and six months, respectively.

The design of the study provided for the inclusion of all first grade pupils in two schools (one white and one Negro) in each of eight Florida county school systems. Of these, the eight schools in four counties served as experimental schools and the eight schools in the other four counties served as comparison schools and were designated as control schools.

Individualized Reading Versus a Basal Reader Program at First Grade Level in Rural Communities: Project 2673; Doris U. Spencer, Director; Johnson State College, Johnson, Vermont.

The project compared the effectiveness of an individualized reading method designed to meet the needs and challenge the abilities of first grade pupils with the basal reader method. Twenty-two teachers were selected on the basis of supervisors' ratings, interest in the project, education and experience to participate in the project. Twelve elected to teach by the individualized plan and ten chose to follow the Scott Foresman Basal Reader program.

The individualized method used in this study was based on the premise that the reading program becomes more effective as individual needs are determined and instruction is concentrated at points of weakness. The instructional program was divided into two parts: an intensive systematic phonetic instruction and a motivated varied program of story reading. This method differs from the popular concept of individualized reading as a program of self-selected story reading unsupported by systematic instruction on word skills and comprehension.

Effectiveness of a Language Arts and Basic Reader Approach to First Grade Reading: Project 2679; Russell G. Stauffer, Director; The University of Delaware, Newark, Delaware.

In this study, the effects of a language arts approach and a basic reader approach to teaching reading were compared.

The language arts approach utilized the children's oral language facility to develop an initial reading vocabulary and initial word attack skills, as well as group type reading instruction in basic readers and individualized reading instruction using trade books.

The basic reader approach utilized basic readers, skill books, and teachers' manuals designed to develop and maintain a reading vocabulary and word attack skills.

The sample was comprised of twenty first grade classrooms; ten used the language arts approach, and ten used the basic readers.

A Comparison of the Effectiveness of Three Different Basal Reading Systems on the Reading Achievements of First Grade Children: Project 2720; Harold J. Tanyzer, Director; Hofstra University, Hempstead, Long Island, New York.

This study compared the effectiveness of three basal reading systems: (1) a basal series with intensive emphasis upon phonics, (2) a basal reading program by Mazurkiewicz and Tanyzer utilizing the Initial Teaching Alphabet, and (3) a popular basal reading series which utilizes an eclectic approach. The study included twenty-six classrooms from three school districts on Long Island, New York. The children were divided not only by sex, but also in terms of intelligence to determine whether any of the basal systems have a differential effect; prove more successful with males than females; or more successful with children of high, average, or low intelligence.

Reading Achievements of First Grade Boys Versus First Grade Girls Using Two Approaches: A Linguistic Approach and a Basal Reader Approach with Boys and Girls Grouped Separately: Project 2735; Nita M. Wyatt, Director; University of Kansas, Lawrence, Kansas.

This project sought to determine (1) whether first grade boys would make greater gains in reading achievement through the use of materials based on a linguistic approach than they would through the use of basal readers based on the frequency of word usage, (2) whether first grade boys would make greater gains if they were grouped on the basis of sex and ability rather than if they were grouped on ability alone with no regard for sex, and (3) whether girls would maker greater gains under each of the approaches studied than would boys.

Two experimental groups and one control group, each consisting of ten first grade classes, were organized. Children from three elementary school districts were chosen to constitute the sample of 633 subjects.

In one experimental group children in ten classes were grouped by sex as well as by ability for reading instruction. In this group, bright boys used the Houghton-Mifflin basal readers, while other boys used either Houghton-Mifflin or Ginn readers. Girls read the Scott, Foresman materials and any other supplementary materials available except those published by Houghton-Mifflin or Ginn.

With the children in the second group of ten classrooms, a linguistic approach to reading was used. The basal program consisted of Book I of the *Royal Road Readers* published by Chatto and Windus of London, the pre-primers of the Harper Row *Linguistic-Science Readers*, and the primer and level 1-1 and 1-2 books of the *Basic Reading* series published by the Lippincott Company.

The third group used materials published by Scott, Foresman, Ginn, and Houghton-Mifflin.

CHAPTER IV

PROCEDURES

This chapter describes the role of the Coordinating Center in the Cooperative Research Program in First-Grade Reading Instruction, the decisions of the project directors concerning data collection and experimental procedures, the organization of the data prior to analysis, and the general procedures of analysis employed.

Role of the Coordinating Center

The Coordinating Center was established primarily to perform two functions. First, the Center was charged with the responsibility for maintaining communication among the various projects and for facilitating thereby the cooperative aspects of the study. Its first function, therefore, was to host a conference of the individual project directors in June, 1964, at which decisions were made concerning experimental procedures and data collection. At this meeting the directors decided upon common prereading and reading outcome measures to be used by all projects. They also agreed to collect information common to all studies about teacher, pupil, school, and community characteristics which might reasonably be expected to be related to success or failure in beginning reading.

Two further meetings of project directors were held, the first in December, 1964, at the University of Minnesota, and the second during the International Reading Association convention in Detroit during May, 1965. These meetings were devoted to discussions of problems concerning cooperative aspects of the study. Every effort was made to establish experimental controls common to all projects in order to make possible comparisons between and among individual studies.

Uniformity in procedures was further enhanced through periodic memoranda issued by the Coordinating Center. A common format for recording data on cards was devised to facilitate the analysis of the common data. The center also served as a clearing house for questions about administration or scoring of certain of the tests employed in the study. In addition, all but five of the projects were visited by either the director or associate director of the Center. These visits enabled Center staff to get a first hand look at each project in order to be in a better position to interpret data collected from them. Moreover, the visits provided an opportunity for the individual project directors to discuss any problems he might have relative to the cooperative aspects of the research.

The second major function of the Coordinating Center was to collect, organize, analyze and interpret the data common to each child in all twenty-seven individual projects. This function, of course, is the basis for this report. Information about the analysis is recorded in the section of this chapter on general experimental procedures and also in the various chapters devoted to the analysis of the data.

Data Collected

A great deal of information about each pupil who participated in the study, about his teacher, about the class and school in which he was enrolled, and about the community in which he lived was collected by all of the participating project directors.

Pupil Data

For each pupil, information was gathered concerning his sex, chronological age at the beginning of the year, amount of pre-school experience, and the number of days he was absent during the experimental period.

Data regarding the child's readiness for reading were gathered by means of an intelligence test and various tests of auditory discrimination, visual discrimination, and language facility. The group intelligence test employed was the Pintner-Cunningham Primary Test. Reading readiness information was gathered by administering: (1) the Murphy-Durrell Phonemes Test, which tests the ability to discriminate between like and unlike sounds; (2) the Murphy-Durrell Letter Names Test, which tests the child's ability to recognize lower case and capital letters; (3) the Murphy-Durrell Learning Rate Test, which tests the child's ability to learn a small number of words; (4) the Thurstone Pattern Copying Test, which tests the child's ability to copy a figure; (5) the Thurstone-Jeffrey Identical Forms Test, which asks the child to select from a group of figures a figure similar to one used as a stimulus; (6) the Metropolitan Word Meaning Test, which is essentially a vocabulary test; (7) the Metropolitan Listening Test which measures a child's ability to follow directions. In addition to these tests which were given to all pupils, the Detroit Word Recognition Test was administered to those pupils who gave some evidence of being able to read at the beginning of first grade.

Post-instructional tests were selected to measure silent and oral reading ability as well as spelling ability, writing ability, and attitude toward reading. The group-administered Stanford Achievement Test, Primary Battery I was administered to all students.

Five subtests were used to measure the child's reading and general language ability. These subtests were: (1) the Word Reading Test, consisting of thirty-five items, which measures the ability of a pupil to identify a word without the aid of context; (2) the Paragraph Meaning Test, which is a measure of the child's ability to comprehend connected discourse ranging in length from single sentences to paragraphs of six sentences, and which involves levels of comprehension varying from extremely simple recognition to the making of inference from several related sentences; (3) the Vocabulary Test, which measures a pupil's vocabulary independent of his reading skill; (4) the Spelling Test, which is a dictation type exercise; and (5) the Word Study Skills Test which tests auditory perception and phonics ability.

In addition to the group-administered Stanford Test of silent reading ability, a sample from each treatment group within each project was administered the Gilmore Oral Reading Test. This sample consisted of twenty to fifty students randomly selected from each treatment group. The Gilmore Test was scored in terms of reading accuracy and reading rate. The same sample pupils were asked to pronounce words from the Gates Word Pronunciation Test and the Fry Phonetically Regular Words Test. The Gates Test consisted of the first two columns from the Gates-McKillop Diagnostic Reading Test. These words are listed according to increasing difficulty, but there is no attempt to control sound-symbol regularity in the gradation of the words. The Fry Test is a list of words controlled on the basis of sound-symbol relationships and graded roughly in order of difficulty by vowel sounds used — short vowel words, long vowel words, broad a, vowel modified by r, and the like. In each of these word lists the child reads aloud and pronounces the word without the benefit of context.

Measures of the child's writing ability and his attitude toward reading were also obtained. The San Diego Pupil Attitude Inventory was administered to all pupils in those projects which chose to employ this instrument. Because not every project director administered this test the analysis of the combined data reported in this volume will not include this attitude measure. The sample pupils who were administered the Fry and Gates word lists and the Gilmore Oral Reading test, also were asked to write a story from a stimulus common to all projects. The writing sample was to be evaluated in terms of mechanics and creative expression. However, because of the difficulty of scoring, not all projects made use of this evaluation technique and therefore the analysis of the combined data likewise does not include this variable. However, reports of the various individual projects may include pertinent information concerning writing ability as it is related to different instructional programs.

In summary, the pupil information that was utilized in the analysis of combined data reported in this volume included the seven readiness measures, the intelligence test, the five Stanford Achievement subtests, the two Gilmore Oral Reading measures, and the Fry and Gates word lists. Information concerning sex was also utilized in that all of the analyses were run using sex as a blocking variable. Pupil data not included in the analysis of the combined data included chronological age, which proved to be unrelated to reading achievement; amount of pre-school experience which was categorized in such a fashion as to make it impossible to use in a covariance analysis; number of days absent during the experimental period, which was found to be unrelated to reading achievement; and the attitude and writing measures which were excluded for reasons already given.

Teacher Data

Data were collected concerning each teacher's (1) sex, (2) age, (3) degrees earned, (4) certification, (5) years of teaching experience, (6) years of experience teaching first grade, (7) marital status, (8) number of children, (9) attitude toward teaching of reading as measured by the San Diego Teacher Attitude Scale, (10) numbers of days absent during the experimental period, and (11) teaching effectiveness as rated by supervisors. All of these data are reported in the Appendix, although only years of experience was utilized as a covariate in any of the analyses. Quantitative measures, such as number of days absent and score on the San Diego Teacher Attitude Scale proved to be unrelated to the reading achievement of pupils and, therefore, were not used. The categorical data which were analyzed, such as the type of teaching certificate held, likewise proved to be unrelated to pupil achievement in reading. The teacher efficiency rating was not utilized because of lack of objectivity which raised questions about reliability and validity and because it was related to only a slight degree with pupil success in reading.

School and Community Data

Information collected about community characteristics included median education of adults in the community, median income of adults according to census figures, population of the community, and type of community (urban, rural, or suburban). Information collected about schools included the number enrolled in each first grade class, length of the school day, length of the school year, number of first-grade rooms in the building, number of first-grade rooms in the district, whether or not the school had the services of a school librarian, and the per pupil costs for education. These data for each project are also included in the Appendix but no further reference will be made to them in terms of the analysis. In the first place, there was little indication that any of the school and community characteristics were significantly related to the reading achievement. This statement of no relationship, of course, is valid only with reference to the specific communities, schools, and school populations included in this project. Furthermore, many of the community characteristics were categorized rather than quantified, thereby making it difficult to use them as control variables in a covariance analysis.

Common Experimental Guidelines

In addition to administering common pre-instructional and post-instructional tests and collecting common information about teachers, schools and communities, the project directors also agreed to abide by certain experimental guidelines. These were necessary, of course, to make possible comparisons between studies. The following procedural controls were considered essential: (1) All testing instruments to be utilized in the collection of the data should not be in the hands of the classroom teacher until the close of the school day preceding the day the test was to be given. (2) Tests were not to be scored by the classroom teacher although she could administer the tests if the building principal or other professional person acted as an observer. (3) No instructions were to be given to the classroom teacher in test procedures beyond those which were provided in the manual for a given test. (4) The length of the experimental program was designated to be 140 instructional days. Pre-tests and post-tests were to be given before and after this 140 day period. Final testing would begin on the 141st day regardless of the time of year. (5) Each project director was encouraged to take whatever steps would be necessary to control for "Hawthorne effect" which would probably be associated with novel experimental programs.

Organization of the Data

The Coordinating Center devised a format to be used by all project directors in recording common data collected. Each project director then punched two sets of data cards, one for his own use and one for the Coordinating Center. Three cards were punched for each pupil in each study. The first of these cards included data on the readiness characteristics of the pupils and the data regarding teacher, school, and community characteristics which could be obtained at the beginning of the school year. The second card for each child recorded the data on the outcome measures and data such as class size at the end of the year which could be obtained at the end of the experimental period. The third card recorded unique data which the project director had collected. Only the first two cards, those which carried common data, were organized and analyzed by the center.

When the data cards arrived at the Coordinating Center, they were first run through a computer program which eliminated from the analysis all pupils on whom complete data were not available. Any pupil's scores were included in the analysis only if he had taken all seven of the readiness tests, the Pintner-Cunningham Primary Test, and all five Stanford Achievement Tests. Furthermore, data were used in the analysis only if information concerning the child's sex and chronological age were punched on his card. As a result, varying numbers of pupils in the various projects were eliminated from the combined analysis because of missing data. However, the pupils eliminated for this reason were relatively few in number. The pupils with complete data were used in the analyses discussed in this volume.

After the cards were screened to eliminate pupils with missing data, descriptive statistics were calculated for all of the quantitative and most of the categorical data. For these descriptive statistics individuals were used as the experimental unit. The statistics were calculated separately for boys and girls within treatment and within project. These descriptive data are tabled in the Appendix. The tables reveal the differences among projects with respect to pupil, teacher, school, and community characteristics. They also point up differences within projects between treatments on the same variables. The descriptive data illustrate very graphically the tremendous project differences in reading achievement of pupils, in prereading readiness characteristics of pupils, and in various teacher, school, and community characteristics. The tables also illustrate that many times the projects were unsuccessful in assigning pupils of equal ability to each of the various treatment groups.

General Procedure of Analysis

This investigation was designed to obtain information relevant to three basic questions: (1) To what extent are various pupil, teacher, class, school, and community characteristics related to pupil achievement in first grade reading and spelling? (2) Which of the many approaches to initial reading instruction produces superior reading and spelling achievement at the end of the first grade? (3) Is any program uniquely effective or ineffective for pupils with high or low readiness for reading?

In order to assess the relationships between various pupil, teacher, class, school, and community characteristics and subsequent pupil achievement in reading, product-moment correlation coefficients were computed. Information about the numbers of pupils involved and the results of this analysis are reported in Chapter [illegible].

Comparisons of method are discussed in Chapters VI and IX. Chapter VI presents the major techniques of analysis utilized in the report. In this section of the analysis various reading programs were evaluated by comparing their effectiveness with that of well-known basal readers used in the same project. Extensive project by treatment interactions, extensive project effects for treatment, and lack of complete replication of treatments in all projects made this the most appropriate technique of analysis to use. Procedures are discussed more completely in Chapter VI along with a presentation of the results.

An analysis was also conducted whereby each treatment within each project was compared with each of the other treatments in all of the other projects. Pupil differences in readiness among the various treatments and projects, as well as teacher differences in experience, were adjusted by means of covariance. This analysis was designed to determine relative rankings of the many treatments used in the investigation. However, tremendous project differences in achievement even after teacher and pupil characteristics had been controlled statistically, coupled with incomplete replication of treatments within projects, made this method of analysis questionable. Nevertheless, it will be presented in Chapter IX for informational purposes. Again procedures will be discussed at greater length in the introductory section of that chapter.

The third general purpose for the study was to determine whether or not any of the programs used was uniquely effective for pupils with high or low readiness for reading. Readiness for reading in this portion of the analysis was assessed by means of an intelligence test, a measure of auditory discrimination, and a test of letter knowledge. Pupils were blocked in tiers according to their performance on each of the three measures. Then the appropriate treatment by readiness characteristic interaction was examined to note whether or not it could have occurred by chance. A significant interaction would indicate that treatments were not operating in the same manner across all ranges of readiness. Discussion of the procedures and results for this analysis are presented in Chapter VII.

CHAPTER V

ANALYSIS OF RELATIONSHIPS

This chapter discusses the relationships between reading and spelling achievement at the end of the first grade and (1) pupil characteristics such as chronological age, mental age, number of days absent, and readiness for reading; (2) teacher characteristics such as years of teaching experience, years of experience teaching first grade, efficiency rating, and days absent; and (3) class size. Relationships among the various individual outcome measures and the group-administered Stanford Achievement Test were also assessed. The Pearson product-moment correlation coefficient was utilized in all cases.

Relationships between Readiness and Reading

Complete data were gathered on seven reading readiness measures and the Pintner-Cunningham Intelligence Test. Achievement was measured by the five subtests of the Stanford Achievement Test. Product-moment correlation coefficients between each predicting measure and each achievement measure were computed separately for each of the treatments identified as Basal, Basal plus Phonics, i.t.a., Linguistic, Phonic/Linguistic, and Language Experience. Most of the correlations were [illegible] by pooling [illegible] [illegible] and [illegible] the [illegible] analysis. The number of pupils on which the correlations were based varied from treatment to treatment.

Correlational relationships for Basal treatment. The product-moment correlation coefficients among readiness measures, among outcome measures, and between each readiness measure and each outcome measure for the Basal treatment are reported in Table [illegible]. In general, the intercorrelations of the predicting measures range from [illegible] to [illegible], thereby indicating that these tests appear to measure different facets of readiness. Relationships among the achievement measures, on the other hand, are somewhat higher [illegible] the correlation coefficients between word recognition and paragraph meaning [illegible] to [illegible].

The best single predictor of achievement on the Stanford subtests [illegible] [illegible] was the Murphy-Durrell Letter Names test. This test correlated [illegible] with Word Reading, [illegible] with Paragraph Meaning, [illegible] with Vocabulary, [illegible] with Spelling, and [illegible] with Word Study Skills. The Murphy-Durrell Phonemes test [illegible] [illegible] [illegible] with the [illegible] achievement measures. The [illegible] [illegible] [illegible] correlated [illegible] to [illegible] with the reading and spelling subtests. The [illegible] [illegible] [illegible] [illegible] [illegible] to the [illegible] achievement measures [illegible] [illegible] [illegible] [illegible] than the [illegible] [illegible] [illegible] [illegible]. [illegible] general, the [illegible] [illegible] the intelligence test and the Paragraph Meaning subtest was [illegible].

Table 5:01

Correlation Matrix for the Basal Treatment

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Murphy-Durrell Phonemes		.50	.37	.35	.29	.35	.26	.46	.48	.46	.44	.37	.48
2. Murphy-Durrell Letter Names	.50		.45	.31	.30	.34	.21	.43	.55	.52	.41	.48	.51
3. Murphy-Durrell Learning Rate	.37	.45		.28	.27	.26	.25	.34	.38	.40	.28	.32	.35
4. Thurstone Pattern Copying	.35	.31	.28		.32	.26	.25	.49	.34	.34	.32	.30	.36
5. Thurstone-Jeffrey Identical Forms	.29	.30	.27	.32		.28	.24	.46	.29	.29	.32	.26	.31
6. Metropolitan Word Meaning	.35	.34	.26	.26	.28		.46	.40	.32	.30	.45	.25	.32
7. Metropolitan Listening	.26	.21	.25	.25	.24	.46		.34	.22	.23	.31	.16	.25
8. Pintner-Cunningham Raw Score	.46	.43	.34	.49	.46	.40	.34		.44	.42	.50	.32	.44
9. Stanford Word Reading	.48	.55	.38	.34	.29	.32	.22	.44		.76	.51	.63	.70
10. Stanford Paragraph Meaning	.46	.52	.40	.34	.29	.30	.23	.42	.76		.49	.66	.69
11. Stanford Vocabulary	.44	.41	.28	.32	.32	.45	.31	.50	.51	.49		.40	.56
12. Stanford Spelling	.37	.48	.32	.30	.26	.25	.16	.32	.63	.66	.40		.64
13. Stanford Word Study Skills	.48	.51	.35	.36	.31	.32	.25	.44	.70	.69	.56	.64	
Means	25.2	32.7	9.4	13.6	15.2	8.5	9.0	36.6	19.6	19.7	21.1	11.1	35.5
Standard Deviations	11.29	12.05	3.95	6.08	6.48	2.70	2.90	7.86	6.03	7.61	5.72	5.36	8.71

NOTE: Correlations were calculated by pooling within class and sex for those treatments labeled basal. Means and pooled estimates of the standard deviations are presented at the base of the table. The N upon which this table is based is 4266 from 187 classes in 17 projects.

Correlation relationships for the I.T.A. treatment. Intercorrelations for the same variables are reported for the I.T.A. treatment in Table 5:02. Again the Letter Names subtest was the best predictor of future success on the Stanford Achievement Test. The Letter Names test correlated .60 with Word Reading, .58 with Paragraph Meaning, .48 with Vocabulary, .53 with Spelling, and .59 with Word Study Skills. The Phonemes subtest and the Pintner-Cunningham Intelligence Test also correlated to a relatively high degree with the Stanford measures. The correlations between prereading measures and reading achievement measures were found to be somewhat higher for the I.T.A. group than for the Basal group but in general were very similar.

Correlation relationships for the Basal plus Phonics treatment. Intercorrelations for the Basal plus Phonics treatment are presented in Table 5:03. One of the best predictors of achievement on the Stanford was again the Letter Names test. The Letter Names test correlated .58 with Word Reading, .55 with Paragraph Meaning, .46 with Vocabulary, .53 with Spelling, and .56 with Word Study Skills. Correlations between the Pintner-Cunningham test and the Stanford Achievement test were of approximately the same magnitude. The Phonemes test also correlated well with the criterion measures. All of the predictive validity coefficients are somewhat higher for this treatment than for the Basal treatment. However, the tests tend to rank in approximately the same order as far as their predictive validity is concerned.

Correlation relationships for the Language Experience treatment. The correlations between prereading measures and reading achievement measures for the Language Experience approach are found in Table 5:04. As a group these correlations are somewhat lower than the correlations found for previous treatments. Again the Letter Names test was the best single predictor of future success in reading and spelling. Knowledge of letter names correlated .52 with Word Reading, .51 with Paragraph Meaning, .36 with Vocabulary, .53 with Spelling, and .48 with Word Study Skills. These correlation coefficients are not substantially different from those obtained between similar variables for the other treatments.

Correlation relationships for the Linguistic treatment. The intercorrelations for the Linguistic treatment are presented in Table 5:05. The Letter Names and Phonemes subtests were the best predictors of achievement. In general the correlation coefficients looked very much like those reported for the other treatments.

Correlation relationships for the Phonic/Linguistic treatment. The intercorrelations for the Phonic/Linguistic treatment are reported

Table 5:02

Correlation Matrix for the I.T.A. Treatment

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Murphy-Durrell Phonemes		.57	.36	.42	.25	.39	.31	.50	.54	.53	.52	.43	.54
2. Murphy-Durrell Letter Names	.57		.37	.38	.28	.37	.30	.48	.60	.58	.48	.53	.59
3. Murphy-Durrell Learning Rate	.36	.37		.26	.20	.23	.22	.31	.35	.34	.26	.30	.30
4. Thurstone Pattern Copying	.42	.38	.26		.27	.33	.30	.51	.45	.41	.40	.35	.43
5. Thurstone-Jeffrey Identical Forms	.25	.28	.20	.27		.30	.27	.46	.36	.33	.34	.25	.33
6. Metropolitan Word Meaning	.39	.37	.23	.33	.30		.38	.48	.40	.38	.51	.28	.41
7. Metropolitan Listening	.31	.30	.22	.30	.27	.38		.38	.31	.29	.41	.25	.31
8. Pintner-Cunningham Raw Score	.50	.48	.31	.51	.46	.48	.38		.52	.52	.58	.40	.52
9. Stanford Word Reading	.54	.60	.35	.45	.36	.40	.31	.52		.83	.60	.64	.77
10. Stanford Paragraph Meaning	.53	.58	.34	.41	.33	.38	.29	.52	.83		.60	.60	.75
11. Stanford Vocabulary	.52	.48	.26	.40	.34	.51	.41	.58	.60	.60		.42	.62
12. Stanford Spelling	.43	.53	.30	.35	.25	.28	.25	.40	.64	.60	.42		.66
13. Stanford Word Study Skills	.54	.59	.30	.43	.33	.41	.31	.52	.77	.75	.62	.66	
Means	28.9	31.7	9.9	12.0	15.7	9.1	9.2	39.1	23.5	21.4	22.0	10.6	38.8
Standard Deviations	11.49	12.32	4.41	6.50	6.45	2.52	2.46	7.71	6.98	9.54	5.89	5.13	8.96

NOTE: Correlations were calculated by pooling within class and sex for those treatments labeled i.t.a. Means and pooled estimates of the standard deviations are presented at the base of the table. The N upon which this table is based is 1055 from 48 classes in 5 projects.

Table 5:03

Correlation Matrix for the Basal plus Phonics Treatment

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Murphy-Durrell Phonemes		.59	.45	.44	.41	.46	.41	.56	.54	.52	.47	.46	.55
2. Murphy-Durrell Letter Names	.59		.50	.47	.46	.46	.43	.58	.58	.55	.46	.53	.56
3. Murphy-Durrell Learning Rate	.45	.50		.35	.35	.32	.33	.45	.39	.39	.32	.34	.37
4. Thurstone Pattern Copying	.44	.47	.35		.45	.34	.37	.59	.46	.46	.38	.40	.47
5. Thurstone-Jeffrey Identical Forms	.41	.46	.35	.45		.34	.35	.54	.40	.40	.39	.37	.41
6. Metropolitan Word Meaning	.46	.46	.32	.34	.34		.49	.54	.41	.44	.52	.34	.41
7. Metropolitan Listening	.41	.43	.33	.37	.35	.49		.51	.37	.38	.42	.31	.39
8. Pintner-Cunningham Raw Score	.56	.58	.45	.59	.54	.54	.51		.57	.56	.54	.51	.57
9. Stanford Word Reading	.54	.58	.39	.46	.40	.41	.37	.57		.77	.55	.70	.76
10. Stanford Paragraph Meaning	.52	.55	.39	.46	.40	.44	.38	.56	.77		.55	.71	.73
11. Stanford Vocabulary	.47	.46	.32	.38	.39	.52	.42	.54	.55	.55		.48	.58
12. Stanford Spelling	.46	.53	.34	.40	.37	.34	.31	.51	.70	.71	.48		.73
13. Stanford Word Study Skills	.55	.56	.37	.47	.41	.41	.39	.57	.76	.73	.58	.73	
Means	21.4	30.8	8.1	12.3	12.0	7.5	7.9	34.1	21.1	20.4	21.5	10.8	35.9
Standard Deviations	12.65	14.14	4.69	6.72	7.07	2.76	2.75	9.09	6.49	8.34	5.58	5.34	9.32

NOTE: Correlations were calculated by Pooling within class and sex for those treatments labeled basal plus phonics. Means and pooled estimates of the standard deviations are presented at the base of the table. The N upon which this table is based is 1104 from 46 classes in 4 projects.

Table 5:04

Correlation Matrix for the Language Experience Treatment

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Murphy-Durrell Phonemes		.48	.35	.34	.24	.30	.27	.42	.45	.41	.40	.38	.44
2. Murphy-Durrell Letter Names	.48		.35	.35	.26	.28	.24	.40	.52	.51	.36	.53	.48
3. Murphy-Durrell Learning Rate	.35	.35		.22	.22	.34	.33	.26	.29	.28	.19	.30	.26
4. Thurstone Pattern Copying	.34	.35	.22		.30	.16	.19	.51	.33	.33	.29	.34	.37
5. Thurstone-Jeffrey Identical Forms	.24	.26	.22	.30		.21	.23	.41	.29	.29	.30	.27	.30
6. Metropolitan Word Meaning	.30	.28	.34	.16	.21		.58	.28	.21	.19	.33	.16	.21
7. Metropolitan Listening	.27	.24	.33	.19	.23	.58		.26	.17	.18	.25	.16	.21
8. Pintner-Cunningham Raw Score	.42	.40	.26	.51	.41	.28	.26		.42	.43	.43	.38	.45
9. Stanford Word Reading	.45	.52	.29	.33	.29	.21	.17	.42		.71	.44	.71	.73
10. Stanford Paragraph Meaning	.41	.51	.28	.33	.29	.19	.18	.43	.71		.50	.70	.69
11. Stanford Vocabulary	.40	.36	.19	.29	.30	.33	.25	.43	.44	.50		.42	.50
12. Stanford Spelling	.38	.53	.30	.34	.27	.16	.16	.38	.71	.70	.42		.73
13. Stanford Word Study Skills	.44	.48	.26	.37	.30	.21	.21	.45	.73	.69	.50	.73	
Means	24.7	34.3	9.8	16.0	15.7	9.0	9.3	38.4	21.0	20.0	22.1	11.8	36.4
Standard Deviations	11.88	11.36	4.81	6.36	7.11	2.89	3.03	7.50	6.60	8.53	5.86	4.85	8.49

NOTE: Correlations were calculated by pooling within class and sex for those treatments labeled language experience. Means and pooled estimates of the standard deviations are presented at the base of the table. The N upon which this table is based is 1431 from 60 classes in 4 projects.

Table 5:05

Correlation Matrix for the Linguistic Treatment

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Murphy-Durrell Phonemes		.47	.33	.35	.26	.38	.29	.46	.55	.50	.48	.51	.57
2. Murphy-Durrell Letter Names	.47		.42	.25	.17	.30	.23	.35	.56	.55	.40	.56	.51
3. Murphy-Durrell Learning Rate	.33	.42		.26	.18	.19	.16	.34	.44	.48	.28	.40	.39
4. Thurstone Pattern Copying	.35	.25	.26		.28	.21	.17	.49	.36	.35	.27	.33	.35
5. Thurstone-Jeffrey Identical Forms	.26	.17	.18	.28		.19	.17	.44	.29	.27	.24	.26	.26
6. Metropolitan Word Meaning	.38	.30	.19	.21	.19		.33	.36	.31	.27	.43	.26	.31
7. Metropolitan Listening	.29	.23	.16	.17	.17	.33		.31	.23	.27	.32	.18	.26
8. Pintner-Cunningham Raw Score	.46	.35	.34	.49	.44	.36	.31		.47	.48	.47	.41	.46
9. Stanford Word Reading	.55	.56	.44	.36	.29	.31	.23	.47		.75	.52	.78	.74
10. Stanford Paragraph Meaning	.50	.55	.48	.35	.27	.27	.27	.48	.75		.46	.72	.66
11. Stanford Vocabulary	.48	.40	.28	.27	.24	.43	.32	.47	.52	.46		.44	.53
12. Stanford Spelling	.51	.56	.40	.33	.26	.26	.18	.41	.78	.72	.44		.75
13. Stanford Word Study Skills	.57	.51	.39	.35	.26	.31	.26	.46	.74	.66	.53	.75	
Means	21.7	20.7	9.4	10.3	15.3	8.3	8.5	33.7	18.7	16.2	20.0	9.4	34.3
Standard Deviations	10.94	10.83	3.63	5.69	7.85	2.53	2.29	8.17	6.29	7.33	5.15	4.79	7.76

NOTE: Correlations were calculated by pooling within class and sex for those treatments labeled linguistic. Means and pooled estimates of the standard deviations are presented at the base of the table. The N upon which this table is based is 760 from 31 classes in 3 projects.

in Table 5:06. The three best predictors of success again were the Letter Names, Phonemes, and Pintner-Cunningham tests. The Letter Names subtest correlated .57 with Word Reading, .59 with Paragraph Meaning, .47 with Vocabulary, .54 with Spelling, and .55 with Word Study Skills. The Phonemes and Pintner-Cunningham tests also correlated near or above .50 with the criterion measures.

Summary of relationships between readiness and reading. A summary of predictive relationships of the various prereading measures is reported in Tables 5:07 and 5:08. In Table 5:07 the Paragraph Meaning subtest of the Stanford Achievement Test is used as a measure of reading achievement. For each of the treatment groups, the Murphy-Durrell Letter Names test ranked first in its relationship with the criterion. Likewise, in four of the six treatment groups the Murphy-Durrell Phonemes test ranked as the second best predictor of reading achievement. The lowest correlation between Letter Names and the Paragraph Meaning subtest was .51 while the highest relationship was .59. Obviously, the ability to recognize letters at the beginning of first grade was related to reading success in all of the methods and programs employed in the study.

Correlations between the other readiness measures and reading achievement were more variable. Coefficients of correlation between the Phonemes subtest and the Paragraph Meaning subtest ranged from .41 to .57. Furthermore, correlations with Paragraph Meaning ranged from .28 to .52 for the Learning Rate test, .33 to .46 for the Pattern Copying test, .27 to .40 for the Identical Forms test, .19 to .44 for the Metropolitan Meaning Test, .18 to .38 for the Metropolitan Listening Test, and .42 to .56 for the Pintner-Cunningham Intelligence test. For these tests there was some indication that predictive relationships were higher within some treatments than within others.

The predictive relationship of each of the various subtests with the Word Reading tests are presented in Table 5:08. For five of the six treatments the Letter Names subtest was the best predictor of Word Recognition ability. The only exception was the Phonic/Linguistic treatment where the Phonemes test correlated best with the criterion. The lowest correlation between Letter Names and Word Reading was .52 for the Language Experience group while the highest correlation was .60 for the I.T.A. group. For most of the other readiness measures the predictive relationship was also consistent from treatment to treatment.

Intercorrelations Among Group and Individual Achievement Measures

Intercorrelations were also computed for the Stanford Word Reading, Stanford Paragraph Meaning, Gilmore Accuracy, Gilmore Rate

Table 5:06

Correlation Matrix for the Phonic/Linguistic Treatment

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Murphy-Durrell Phonemes		.56	.54	.40	.33	.41	.40	.54	.59	.57	.53	.50	.59
2. Murphy-Durrell Letter Names	.56		.49	.27	.30	.34	.33	.50	.57	.59	.47	.54	.55
3. Murphy-Durrell Learning Rate	.54	.49		.35	.28	.30	.27	.44	.48	.52	.40	.45	.50
4. Thurstone Pattern Copying	.40	.27	.35		.28	.27	.20	.50	.36	.34	.34	.35	.39
5. Thurstone-Jeffrey Identical Forms	.33	.30	.28	.28		.35	.32	.52	.38	.35	.31	.32	.35
6. Metropolitan Word Meaning	.41	.34	.30	.27	.35		.39	.48	.35	.32	.55	.29	.36
7. Metropolitan Listening	.40	.33	.27	.20	.32	.39		.51	.31	.33	.42	.27	.31
8. Pintner-Cunningham Raw Score	.54	.50	.44	.50	.52	.48	.51		.56	.52	.54	.47	.56
9. Stanford Word Reading	.59	.57	.48	.36	.38	.35	.31	.56		.81	.60	.84	.80
10. Stanford Paragraph Meaning	.57	.59	.52	.34	.35	.32	.33	.52	.81		.60	.76	.76
11. Stanford Vocabulary	.53	.47	.40	.34	.31	.55	.42	.54	.60	.60		.60	.63
12. Stanford Spelling	.50	.54	.45	.35	.32	.29	.27	.47	.84	.76	.60		.80
13. Stanford Word Study Skills	.59	.55	.50	.39	.35	.36	.31	.56	.80	.76	.63	.80	
Means	29.2	35.6	10.8	9.6	15.3	9.1	9.5	39.5	26.7	24.4	24.1	14.2	41.7
Standard Deviations	12.12	11.55	3.91	5.77	5.55	2.53	2.29	7.30	6.44	9.33	6.08	5.49	8.98

NOTE: Correlations were calculated by pooling within class and sex for those treatments labeled phonic/linguistic. Means and pooled estimates of the standard deviations are presented at the base of the table. The N upon which this table is based is 488 from 23 classes in 3 projects.

Table 5:07

Summary of Correlations Between Premeasures and Stanford Paragraph Meaning Test for Each of Six Treatments

	Basal	I.T.A.	Basal plus Phonics	Language Experience	Linguistic	Phonic/ Linguistic
Murphy-Durrell Phonemes	.46	.53	.52	.41	.50	.57
Murphy-Durrell Total Letters	.52	.58	.55	.51	.55	.59
Murphy-Durrell Learning Rate	.40	.34	.39	.28	.48	.52
Thurstone Pattern Copying	.34	.41	.46	.33	.35	.34
Thurstone-Jeffrey Identical Forms	.29	.33	.40	.29	.27	.35
Metropolitan Word Meaning	.30	.38	.44	.19	.27	.32
Metropolitan Listening	.23	.29	.38	.18	.27	.33
Pintner-Cunningham Intelligence Test	.42	.52	.56	.43	.48	.52

Table 5:08

Summary of Correlations Between Premeasures and Word Reading Test for Each of Six Treatments

	Basal	I.T.A.	Basal plus Phonics	Language Experience	Linguistic	Phonic/ Linguistic
Murphy-Durrell Phonemes	.48	.54	.54	.45	.55	.59
Murphy-Durrell Letter Names	.55	.60	.58	.52	.56	.57
Murphy-Durrell Learning Rate	.38	.35	.39	.29	.44	.48
Thurstone Pattern Copying	.34	.45	.46	.33	.36	.36
Thurstone-Jeffrey Identical Forms	.29	.36	.40	.29	.29	.38
Metropolitan Word Meaning	.32	.40	.41	.21	.31	.35
Metropolitan Listening	.22	.31	.37	.17	.23	.31
Pintner-Cunningham Intelligence Test	.44	.52	.57	.42	.47	.56

of Reading, Fry Phonetically Regular Word List, and Gates Word Pronunciation Test. There was special interest in determining the relationships among the Stanford Word Reading test, the Fry Word List, and the Gates Word List. The Stanford test differed from the other two in that it was administered to a group. The Fry test was unique in that it was designed to test children's recognition of phonetically regular words. The Gates list, on the other hand, consisted of high frequency words with no regard for regularity in sound-symbol relationships. The investigators were interested in assessing the degree of independence among these three measures of word recognition. Correlation coefficients computed for each treatment group are reported in Tables 5:09, 5:10, 5:11, 5:12, 5:13, and 5:14. The correlations between the Stanford Word Reading test and the Fry test ranged from .69 to .83 for the six treatments. Correlations between the Word Reading test and the Gates test varied from .74 to .86. Furthermore, the Gates and Fry lists correlated between .75 and .92 with each other. Evidently a child who can read phonetically regular words can also read high frequency words, and a child who can identify words in a group situation can do likewise on an individual test. In addition, the Gilmore Accuracy score correlated from .81 to .90 with the Gates Word Pronunciation test for the various treatments. This would indicate that pronouncing a word in context is closely related to pronouncing a word in isolation. As a further indication of the interrelatedness of reading skills at the first-grade level it is interesting to note that correlations between rate of reading and the Gates Word Pronunciation test ranged from .49 to .78, certainly a substantial correlation.

Relationships between Teacher, Pupil, and Class Characteristics and Achievement

The relationships between various pupil, class, and teacher characteristics and achievement on the Stanford Battery are reported in Table 5:15. From this table it is obvious that none of the characteristics is highly related to achievement on any of the Stanford measures. For the class sizes reported in this study there was no relationship with first grade achievement. However, there were no very large or very small classes involved in the study. Teacher absence (within the limits of this particular sample) was likewise unrelated to achievement. Teacher experience was positively related to reading achievement with correlations in the neighborhood of .30. However, the correlations reported between teacher experience and reading achievement were substantially lower than similar correlations between reading readiness and reading achievement. In general, the younger child did somewhat better in reading than did his older counterpart. Also, in general, the child who attended school regularly did somewhat better than the child who was absent

Table 5:09

Intercorrelations of Individual Outcome Measures and Selected Subtests from the Stanford Achievement Test for the Basal Treatment

Variable	1	2	3	4	5	6
1. Stanford Word Reading		.84	.78	.58	.72	.78
2. Stanford Paragraph Meaning			.78	.62	.71	.78
3. Gilmore Accuracy				.61	.75	.82
4. Gilmore Rate					.45	.56
5. Fry Word List						.86
6. Gates Word List						
Means	20.3	20.0	22.7	56.4	6.9	13.5
Standard Deviations	6.87	8.89	11.13	24.31	7.41	7.27

NOTE: Correlations were calculated within projects and sex and pooled over these units. The N upon which the table is based is 609 coming from 15 projects.

Table 5:10

Intercorrelations of Individual Outcome Measures and Selected Subtests from the Stanford Achievement Test for the I.T.A. Treatment

Variable	1	2	3	4	5	6
1. Stanford Word Reading		.84	.80	.59	.69	.83
2. Stanford Paragraph Meaning			.79	.63	.67	.82
3. Gilmore Accuracy				.65	.59	.84
4. Gilmore Rate					.44	.67
5. Fry Word List						.75
6. Gates Word List						
Means	23.8	21.9	24.9	60.5	16.3	18.7
Standard Deviations	7.77	10.94	13.57	30.05	10.15	8.53

NOTE: Correlations were calculated within projects and sex and pooled over these units. The N upon which the table is based is 163 coming from 5 projects.

Table 5:11

Intercorrelations of Individual Outcome Measures and Selected Subtests
from the Stanford Achievement Test for the Basal plus Phonics Treatment

Variable	1	2	3	4	5	6
1. Stanford Word Reading		.82	.76	.58	.73	.74
2. Stanford Paragraph Meaning			.79	.57	.72	.77
3. Gilmore Accuracy				.67	.76	.81
4. Gilmore Rate					.46	.53
5. Fry Word List						.84
6. Gates Word List						
Means	23.2	23.2	24.6	58.5	13.3	17.3
Standard Deviations	6.52	8.57	10.97	20.62	6.33	7.16

NOTE: Correlations were calculated within projects and sex and pooled over these units. The N upon which the table is based is 184 coming from 3 projects.

Table 5:12

Intercorrelations of Individual Outcome Measures and Selected Subtests From the Stanford Achievement Test for the Language Experience Treatment

Variable	1	2	3	4	5	6
1. Stanford Word Reading		.84	.78	.49	.81	.86
2. Stanford Paragraph Meaning			.79	.49	.78	.83
3. Gilmore Accuracy				.47	.82	.86
4. Gilmore Rate					.45	.49
5. Fry Word List						.89
6. Gates Word List						
Means	21.4	19.8	21.5	52.7	8.9	13.6
Standard Deviations	7.15	9.91	10.89	20.99	8.09	7.60

NOTE: Correlations were calculated within projects and sex and pooled over these units. The N upon which the table is based is 134 coming from 3 projects.

Table 5:13

Intercorrelations of Individual Outcome Measures and Selected Subtests
from the Stanford Achievement Test for the Linguistic Treatment

Variable	1	2	3	4	5	6
1. Stanford Word Reading		.81	.83	.70	.83	.84
2. Stanford Paragraph Meaning			.85	.70	.79	.84
3. Gilmore Accuracy				.81	.88	.90
4. Gilmore Rate					.70	.78
5. Fry Word List						.92
6. Gates Word List						
Means	18.6	15.8	18.4	43.8	8.0	10.7
Standard Deviations	7.96	9.33	12.14	27.70	7.19	8.30

NOTE: Correlations were calculated within projects and sex and pooled over these units. The N upon which the table is based is 146 coming from 3 projects.

Table 5:14

Intercorrelations of Individual Outcome Measures and Selected Subtests from the Stanford Achievement Test for the Phonic/Linguistic Treatment

Variable	1	2	3	4	5	6
1. Stanford Word Reading		.83	.75	.59	.83	.79
2. Stanford Paragraph Meaning			.78	.64	.75	.72
3. Gilmore Accuracy				.65	.83	.84
4. Gilmore Rate					.67	.68
5. Fry Word List						.87
6. Gates Word List						
Means	26.8	24.7	30.1	59.7	18.2	20.5
Standard Deviations	6.57	9.64	14.26	25.34	8.76	9.79

NOTE: Correlations were calculated within projects and sex and pooled over these units. The N upon which the table is based is 94 coming from 3 projects.

Table 5:15

Correlations Between Pupil, Class, and Teacher Characteristics and Stanford Battery

	Word Reading	Paragraph Meaning	Vocabulary	Spelling	Word Study Skills
Class Size	-.01	.01	-.03	.02	-.04
Teacher Absence	-.07	-.08	-.04	-.01	-.03
Teacher Total Experience	.27	.32	.24	.34	.32
Teacher First Grade Experience	.23	.30	.20	.30	.27
Teacher Rating	.14	.13	.10	.22	.19
Child Age	-.17	-.17	-.15	-.22	-.20
Pupil Absence	-.09	-.05	-.02	-.08	-.09

NOTE: Correlation coefficients were computed using class means as experimental variables. N equals 159.

occasionally. However, this relationship was negligible. In summary, it can be said that the teacher characteristics measured in this study were negligibly related to reading success. Furthermore, child age, pupil absence, and class size were related only to very slight degrees.

Data which could not be quantified were also obtained. A great deal of information about school and community characteristics was collected but much of this was categorical in nature. Information concerning these characteristics within each project is tabled in the appendix.

CHAPTER VI

ANALYSIS OF INSTRUCTIONAL METHODS

This chapter discusses that part of the analysis which was concerned with evaluating the relative effectiveness of the primary reading programs in the Cooperative Research Program in First-Grade Reading Instruction. Because the various approaches were not all used in all projects, comparisons could not be made between and among all of them. However, projects which had in common a Basal treatment and another treatment (such as I.T.A.) were grouped together. In this manner, the basal reader treatment was used as a bench-mark against which to compare achievement in each of the less traditional non-basal programs.

General Procedures

Data from fifteen projects were used in this section of the analysis. These particular fifteen projects were included because they utilized a sample which was considered to be representative of the total population and an experimental program which also was used in another investigation. The establishment of these two criteria eliminated atypical populations such as those comprised of Spanish-speaking youngsters and projects which included a treatment such as individualized reading which was not replicated in any other project.

Six types of instructional materials or methods were used as experimental treatments in more than one project. These six groupings were labeled Initial Teaching Alphabet, Basal plus Phonics, Language Experience, Linguistic, Phonic/Linguistic, and Basal. A listing of the specific materials which comprised each of these major groupings will be provided in later sections of this chapter. Five separate analyses were then performed, each analysis using the basal reader as a control against which to compare progress in other instructional programs. All of the projects which used as experimental treatments both a basal reader approach and an I.T.A. approach, for example, were combined into a single analysis. Similarly, projects were grouped together for analysis if they had in common programs labeled Basal and Language Experience, Basal and Basal plus Phonics, Basal and Linguistics, and Basal and Phonic/Linguistic. It should be emphasized that for this section of the analysis, methods and materials were placed in categories arbitrarily on the basis of their common characteristics. The purpose was to get some idea of whether or not there was a general superiority of some treatment over several different projects. The paragraphs which follow will discuss major characteristics of each treatment.

One of the program groupings was labeled the Basal approach. The basal reading program, then, was considered an entity even though the programs of many different publishers were utilized. The various sets of materials included in this category possess most, if not all, of the following characteristics: (1) Vocabulary is introduced slowly and repeated often. Vocabulary control is based on frequency of usage rather than on regularity of sound-symbol relationships. (2) Phonic analysis is introduced gradually and usually only after some "sight" words have been taught. However, from the beginning the child is encouraged to use such other word recognition skills as context, structural analysis, and picture clues. (3) Emphasis from the beginning is placed not only on word recognition but on comprehension and interpretation of what is read. (4) Silent reading is emphasized early in the program. (5) The various reading skills are introduced and developed systematically. (6) A well-known Basic Reading Series is used as the major instructional tool.

Another method category utilized in this phase of the analysis was labeled I.T.A. or the Initial Teaching Alphabet. This instructional medium purports to simplify the task of learning to read by introducing a novel forty-four character alphabet with which to encode the approximately forty sounds in our language. In general, one symbol is used to represent one sound thereby making possible more consistent phonic analysis of words. Furthermore, the nature of the alphabet is such that the transition from the use of the Initial Teaching Alphabet to the use of traditional orthography is purported to be a relatively simple task. Two different programs comprised the I.T.A. approach discussed in this chapter but these two programs had in common the unique characteristic of a teaching medium which was quite different from that used by any of the other methods and materials.

A third treatment category was labeled Basal plus Phonics. Each of the treatments in this group was comprised of a basal reading series with supplementary phonics materials. The instructional programs, therefore, although somewhat different from project to project, followed the basic philosophy of the basal reader with the addition of a greater phonic emphasis.

A fourth treatment group was labeled Language Experience. A basic element of this instructional method is that the child's own writing serves as a medium of instruction. The child's first stories are dictated to the teacher who acts as the recorder. As soon as he is able, the pupil writes his own stories and shares them with the teacher. During the individual conferences between pupil and teacher he is helped to recognize the commonality between the words he writes and speaks and he develops the skills necessary for reading. This approach, then, ordinarily utilizes far fewer highly structured instructional materials than do most instructional programs. In addition, vocabulary control is viewed as being in the language itself and in the language background of each child. The pupil learns to read the words which he finds it necessary for him to use in writing. One of the major instructional tasks in this method is to engender a stimulating language environment.

A fifth treatment category was labeled Linguistic. The various materials included in this treatment possess most, if not all, of the following characteristics: (1) There is an early introduction to letters, and knowledge of letter names and the ability to recognize letters are considered prerequisite skills for reading instruction. (2) Sound-symbol relationships are taught through careful sequencing of word patterns. Words with high sound-symbol regularity are taught first and the child is led to discover the sound-symbol relationships which exist. In many cases, the child is encouraged to use sound-symbol relationships as the basic word recognition technique by withholding from him such clues as pictures and word length. (3) In many cases there is less emphasis on understanding and comprehension in the early stages. Reading is considered a process of translating graphic symbols into sounds and primary attention is paid to helping the child learn the decoding system. Materials which were placed in the Linguistic category tended to follow in general the characteristics described above.

The only "pure" treatment was the Phonic/Linguistic program published by the Lippincott Company. As the name implies, this instructional program has certain characteristics in common with phonic and linguistic programs, as well as with basal programs, but it does not fit well with any of the other treatments. Therefore, the decision was made to recognize this program as a separate method under the category of Phonic/Linguistic. It is in some respects a linguistically oriented basal program with more demanding pupil expectations.

Description of Analysis

The effectiveness of the various reading programs was evaluated in terms of the pupils' end-of-year performance on the five subtests of the Stanford Achievement Test, Primary I Battery. This test was administered to all participating pupils after 140 days of instruction in the first grade. In addition, a sample was selected from the experimental population to be administered the Gilmore Oral Reading Test, the Fry Phonetically Regular Word List, and the Gates Word Pronunciation Test. These tests were individually administered in the testing period immediately following the 140 day instructional period.

Analysis of Stanford Achievement Test Scores

The analysis followed a general pattern. For each of the five comparisons (I.T.A. versus Basal, Language Experience versus Basal, Basal plus Phonics versus Basal, Linguistic versus Basal, and Phonic/Linguistic versus Basal) separate means were calculated for males and females within each class on all quantitative variables. The analysis was then conducted using these class means for males and females as the experimental unit, blocking on project, treatment, and sex. This section of the analysis was conducted as if a complete factorial arrangement of treatments had been made. Projects were treated as blocks and the assumption was made that within each project treatments were assigned at random to a set of classes. It was assumed that identical treatments were used in each project (within a specified comparison such as I.T.A. versus Basal), thus making it reasonable to test for a general treatment effect over all projects. This portion of the analysis, therefore, gave "across-projects" information.

For each of the five treatment comparisons an analysis of variance was carried out on the seven premeasures--Murphy-Durrell Phonemes, Murphy-Durrell Letter Names, Murphy-Durrell Learning Rate, Thurstone-Jeffrey Identical Forms, Metropolitan Word Meaning, Metropolitan Listening, and Pintner-Cunningham Primary Test. The analysis of variance on premeasures was designed to indicate those premeasures on which significant differences in performance were found between basal and non-basal treatments. In this analysis, the Thurstone Pattern Copying Test, which had been administered to all pupils, was not utilized because of its relatively low correlation with the criterion measures and because of the difficulty encountered in scoring the instrument. School, community, and teacher characteristics were not considered in this analysis for two reasons. In the first place, these characteristics, as measured in this investigation, were found to be relatively unrelated to reading achievement. Secondly, many of these characteristics were not quantitative and in many cases no ordered relationship existed among categories. As a result, most community characteristics and such teacher characteristics as amount of education could not easily be incorporated as controls in a covariance analysis. All teacher, school, and community characteristics by treatment within project are presented in the appendix.

The next step was to perform an analysis of covariance using a minimum number of covariates. These were chosen on the basis of their potential for adjusting differences in pre-instructional reading-related characteristics. Therefore, the particular premeasures utilized as covariates for an I.T.A. versus Basal comparison might be different from those used for a Language Experience versus Basal comparison.

In each of the five treatment comparisons a second covariance analysis was also conducted. This covariance analysis utilized all seven premeasures as covariates in order to make pupils in basal and non-basal treatments as similar as possible in their readiness for reading. This second covariance analysis also had the advantage of being entirely consistent from one treatment comparison to another in that the very same premeasures were used as covariates.

The across-projects covariance analysis of outcome measures was then examined to determine whether or not project by treatment interactions were present. It should be remembered that in this analysis projects were treated as blocks and analysis of the data ignoring project lines would be meaningful only if no significant project by treatment interactions were found. If such interactions were present, thereby indicating that treatment effects did not operate in the same fashion over all projects, a within-projects analysis was conducted. This within-projects analysis tested for treatment differences within each project but simultaneously for all projects. As a result, all data from all projects involved in a comparison were used to obtain the error term, thus increasing the precision of the experiment. This analysis also followed the pattern of first performing an analysis of variance and then two analyses of covariance, utilizing in turn a selected set of premeasures and the total set of seven premeasures.

The discussion of the method comparisons will proceed in the manner described above. First, the across-projects analysis for each basal versus non-basal treatment comparison will be discussed. Next, the within-projects analysis showing the relative effectiveness of the basal and non-basal treatments within the projects making up that particular treatment comparison will be presented.

Analysis of Sample Measures

An analysis similar to the one described for the Stanford Achievement Test results was conducted on the accuracy and rate scores from the Gilmore Oral Reading Test, as well as on the Fry Phonetically Regular Word Test and the Gates Word Pronunciation Test.

Each of these tests was individually administered to a random sample from each treatment within each project. Although these numbers varied from project to project, approximately twenty to fifty pupils were chosen to represent each treatment in each project.

The analysis followed the same steps as those described for Stanford scores. The only difference was that individuals were used as the experimental unit rather than class means based on each sex. With the small numbers involved it was felt that the use of class means would not have been reasonable. Furthermore, because of consistent project by treatment interactions only the within-projects analysis will be reported. In this chapter the discussion of the within-projects analysis of individual outcome measures will follow the discussion of the Stanford data for each of the treatment comparisons.

An Illustration of the Analysis (Basal versus I.T.A.)

The analysis of the I.T.A. versus Basal treatment comparison demonstrates the technique used for all such comparisons. The discussion of this analysis will be presented in greater detail and will serve as a model of the analysis used in all cases. The projects used in this particular comparison, as well as the numbers of pupils for each treatment and the exact nature of the materials employed, is recorded in Table 6:01. Four of the five I.T.A. treatments used the Mazurkiewicz-Tanyzer Early-to-Read materials while one project employed the Downing Readers. Although these two sets of materials differ to a considerable extent, the decision was made to pool the data because of the unique similarity regarding the alphabet used for beginning reading instruction. Table 6:01 also reveals that a variety of basal readers were used in the various projects. In fact, in one project, the teachers using basal programs were encouraged to choose any basal series they wished. However, for the purposes of this analysis, the basal treatment was considered to be similar from project to project.

As a first step an analysis of variance was carried out on the seven premeasures and the five Stanford Reading Achievement Test scores. As was true in all of the basal versus non-basal treatment comparisons, the experimental unit was a class mean calculated separately for each of the sexes. Projects, treatments, and sex constituted the blocks in the across-projects design. Information pertaining to the analysis of the premeasures is reported in Table 6:02. Highly reliable project differences were found indicating that pupils in the various projects differed considerably in their readiness for reading. Significant differences were also found favoring girls on five of the seven premeasures. Only one treatment

Table 6:01

Materials and Numbers of Classes and Pupils for Basal vs I.T.A.

	Fry		Hahn		Hayes		Mazurkiewicz		Tanyzer	
	Classes	Pupils	Classes	Pupils	Classes	Pupils	Classes	Pupils	Classes	Pupils
Numbers										
Basal	6	110	12	276	5	87	17	317	9	228
i.t.a.	7	134	12	255	5	96	15	330	9	240
Materials										
Basal	Allyn-Bacon		Variety		Scott-Foresman		Row-Peterson American Book		Scott-Foresman	
i.t.a.	Early-to-Read		Downing Readers		Early-to-Read		Early-to-Read		Early-to-Read	

Table 6:02

Across Projects Analysis of Variance on Premeasures for Basal vs I.T.A. Comparison

Effect	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
Sex	13.39F	25.87F	7.88F	4.05f	.34	3.63	12.90F
Treatment	3.38	17.02B	2.22	.77	.41	.08	.11
Sex x Treatment	.63	.34	.00	.24	.65	1.92	.82
Project	17.71**	10.68**	40.52**	10.15**	7.35**	5.84**	11.70**
Sex x Project	.34	.65	.74	.10	.10	.42	.88
Trt x Project	2.94*	5.12**	1.17	.71	3.60**	1.93	1.51
Sex x Trt x Proj	.14	.23	.22	.05	.17	.37	.30

NOTE: Significant difference favoring I.T.A. indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk indicates project difference or interaction significant at .05 level; two asterisks, .01 level. Numerator degrees of freedom equal one (1) except for all effects involving project in which case numerator d.f. equal 4. Denominator d.f. equal 174.

difference was found, that favoring the Basal treatment. Treatment by project interactions were found to be significant on three of the seven premeasures.

The across-projects analysis of variance on the Stanford measures is summarized in Columns A of Table 6:03. Sex differences favoring girls were found to be significant on four of the five outcome measures. Negligible sex by treatment interactions indicate that boys and girls were not uniquely influenced by either the Basal or I.T.A. treatments. Treatment differences were found to be significant favoring the I.T.A. on the Word Reading Test and Basal pupils on the Spelling Test. The interpretation of differences, however, is clouded by the treatment by project interaction reported to be significant for each of these two measures. Moreover, significant treatment by project interactions were found on the Paragraph Meaning and Word Study Skills variables.

It was hoped that an analysis of covariance might eliminate the project by treatment interactions. The analysis of variance of the premeasures reported in Table 6:02 was studied to find covariates with the greatest potential for eliminating the interaction. Letter Names was used as a covariate because of the significant treatment by project interaction and because of the large main effects for treatment. Since the Phonemes subtest had somewhat the same relationship it was also included. Columns B of Table 6:03 report the results of this covariance analysis. The utilization of the Phonemes and Letter Names subtests as covariates reduced the treatment by project interaction on each of the outcome variables, but the same four were still significant. Covariance had the desired effect but it was not enough to erase the treatment by project interactions. Therefore, the utility of the analysis of treatment differences across projects was still questionable.

The nature of the treatment by project interactions is illustrated on Table 6:04. It is apparent from this table of unadjusted means that (1) on the Word Reading test the only large differences between treatments favored I.T.A.; (2) for the Paragraph Meaning variable, the only large differences favored I.T.A., while small differences in the other projects went both ways; (3) for the Spelling test the differences were, in general, large but not consistent since project 3 favored I.T.A. while the other differences generally favored Basal; and (4) for the Word Study Skills variable all differences except those in project 4 favored I.T.A. but the differences were of varying amounts.

Table 6:03

Across Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs I.T.A. Comparison

Effect	Word Reading A	B	C	Paragraph Meaning A	B	C	Vocabulary A	B	C	Spelling A	B	C	Word Study Skills A	B	C
Sex	12.53F	.17	.10	19.27F	2.66	2.07	.97	10.72M	8.86M	14.41F	1.86	1.07	9.97F	.06	.15
Trt	17.08N	29.78N	13.32N	1.19	3.90n	4.65n	.35	.05	.14	13.16B	9.26B	9.44B	3.54	5.16n	6.08n
SxT	.21	.01	.03	.25	.00	.00	.75	.22	.15	1.16	.63	.73	.00	.40	.45
Proj	2.51*	10.36**	10.83**	1.62	8.69**	11.71**	.80	18.19**	24.23**	4.45**	8.70**	12.06**	2.88*	7.78**	11.71**
SxP	.28	.28	.58	.04	.35	.62	.11	.13	.41	.32	.35	.31	.32	.09	.30
TxP	7.11**	5.00**	5.21**	4.20**	3.34*	2.86*	2.21	.83	.21	13.57**	9.91**	12.95**	6.91**	4.07**	5.52**
SxTxP	.20	.34	.26	.13	.28	.16	.92	1.51	1.20	.02	.04	.03	.45	.58	.65

NOTE: Column A summarizes analysis of variance; Column B, covariance using Phonemes and Letter Names as covariates; Column C, covariance using all seven premeasures as covariates. Significant difference favoring I.T.A. indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk indicates project difference or interaction significant at .05 level; two asterisks, .01 level. Numerator degrees of freedom are 1 for all effects except those involving project which are based on 4 d.f. Denominator d.f. are 174, 172, and 167 for Columns A, B, and C respectively.

Table 6:04

Within Projects Unadjusted Means on Stanford Measures for the Basal vs I.T.A. Comparison

Project	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	Basal	ITA	Basal	ITA	Basal	ITA	Basal	ITA	Basal	ITA
Fry	20.2	20.7	19.9	17.4	23.2	22.3	10.8	7.4	33.9	35.2
Hahn	22.5	24.0	21.8	21.6	21.7	22.0	13.2	11.2	38.5	39.6
Hayes	18.5	24.7	19.3	22.0	22.0	22.2	9.0	14.7	34.2	40.2
Mazurkiewicz	22.0	21.8	21.1	20.1	22.4	20.4	13.6	8.9	39.1	36.1
Tanyzer	17.5	25.3	16.1	23.2	20.5	22.5	10.2	11.9	33.9	42.0

The analysis of covariance summarized in Columns B of Table 6:03 also reveals that only one sex difference was recorded, that favoring boys. Adjusting for premeasure differences on the Phonemes and Letter Names tests erased significant differences in reading ability which had been shown to favor girls in the analysis of variance. Project differences, however, were found on each of the five outcome measures.

One last attempt was made to eliminate treatment by project interaction. A covariance analysis using all seven premeasures as covariates was conducted. The result of this covariance analysis is reported in Columns C of Table 6:03. Very substantial project differences still existed even though pupils' readiness had been controlled. Furthermore, the treatment by project interactions on four of the five variables were still significant. Therefore, the treatment differences found on the Word Reading, Paragarph Meaning, Spelling, and Word Study Skills tests could not be interpreted unambiguously.

As a result of the persistence of the project by treatment interactions, the data were then analyzed within each project. This analysis permitted the assessment of the effects of treatment and sex separately for each project. It proceeded in exactly the same fashion as did the across-projects analysis. First an analysis of variance on the premeasures within each project was carried out. As reported in Table 6:05, three of the five projects found no treatment differences on any of the seven premeasures. However, within the two remaining projects significant differences were found in pupil performance on the Phonemes, Letter Names, and Word Meaning subtests. In these projects, the randomization procedure had not succeeded in equalizing prereading ability (as measured by the three subtests) between the basal and non-basal group. This within-project analysis of premeasures again points out the superiority of girls with respect to prereading ability. The extent of the differences in mean performance on the premeasures between basal and non-basal groups is illustrated on Table 6:06 which presents treatment means on each measure for each of the five Basal versus I.T.A. projects.

The next step in the within-projects analysis involved conducting an analysis of variance on the Stanford Achievement measures. This analysis is summarized in Columns A of Table 6:07. On the Word Reading test, significant differences favoring the I.T.A. treatment were found in two of the five projects. One project recorded a significant difference favoring the I.T.A. treatment on the Paragraph Meaning subtest. On the Vocabulary test, however, the only significant difference favored the Basal treatment. Four of the five projects reported significant differences between treatments on the

Table 6:05

Within Projects Analysis of Variance on Premeasures for the Basal vs I.T.A. Comparison

Project	Effect	Murphy-Durrell Phonemes	Murphy-Durrell Total Letters	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
Fry	Sex x Treatment	.18	.87	.14	.16	.95	.42	1.22
	Treatment	.05	3.02	.78	.17	.25	2.59	1.76
	Sex	3.15	6.57f	5.68f	.46	.01	.81	4.20f
Hahn	Sex x Treatment	.54	.37	.05	.27	.05	.12	.06
	Treatment	1.30	.05	.52	2.92	.35	1.09	.03
	Sex	1.13	2.12	.91	.81	.54	1.02	.54
Hayes	Sex x Treatment	.11	.00	.60	.02	.00	.58	.37
	Treatment	2.61	1.53	.39	.15	1.63	2.69	.16
	Sex	.40	2.37	.03	.44	.07	.27	1.23
Mazurkiewicz	Sex x Treatment	.37	.03	.10	.00	.34	1.19	.28
	Treatment	.46	30.92B	3.96b	.00	10.31B	.41	.88
	Sex	6.11f	7.55F	1.45	.75	.11	1.20	2.53
Tanyzer	Sex x Treatment	.00	.02	.00	.00	.00	1.12	.15
	Treatment	11.70N	1.59	.08	.33	2.31	1.04	2.39
	Sex	3.95f	9.82F	2.76	2.00	.00	2.00	7.86F

NOTE: Significant difference favoring i.t.a. indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance, lower case letter .05 level. All F ratios based on 1 and 174 degrees of freedom.

Table 6:06

Premeasure Means for the Basal vs I.T.A. Comparison

Project	Trt	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
FRY	Basal	23.1	33.4	8.1	15.9	9.2	9.7	40.3
	ITA	22.5	29.3	7.4	15.0	8.8	8.9	38.2
HAHN	Basal	26.9	35.5	8.6	18.7	9.9	9.5	40.0
	ITA	29.2	35.1	9.1	21.6	10.2	9.9	40.2
HAYES	Basal	14.7	24.0	7.0	13.1	7.2	7.8	33.3
	ITA	19.9	27.4	7.6	12.0	8.2	8.8	32.6
MAZURKIEWICZ	Basal	31.9	37.2	12.5	15.2	9.5	9.0	40.3
	ITA	30.6	28.7	11.5	15.2	8.2	8.8	39.3
TANYZER	Basal	24.0	36.7	10.9	12.5	8.8	9.7	37.6
	ITA	32.2	34.1	10.7	13.6	9.7	9.3	40.2

Table 6:07

Within Projects Analysis of Variance and Covariance on Stanford Measures for the Basal vs I.T.A. Comparison

		Word Reading			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
P	Eff	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	Sex	1.34	.38	.77	2.28	.00	.14	.43	2.14	3.02	2.76	.21	.00	1.64	.05	.19
	Trt	.10	1.76	2.55	1.29	.38	.15	.48	.00	.16	7.52B	6.56b	5.84b	.38	2.26	3.09
	SxT	.49	.10	.00	.26	.00	.02	4.15*	4.84*	4.16*	.30	.03	.01	.50	.14	.01
2	Sex	.96	.00	.07	4.30f	2.47	3.05	.04	1.31	.52	3.61	1.89	2.03	.69	.00	.11
	Trt	1.68	1.39	1.92	.01	.36	.25	.07	.03	.01	4.66b	8.37B	8.37B	.43	.05	.17
	SxT	.16	.03	.01	.10	.05	.01	.03	.27	.01	.40	.07	.31	.35	.02	.19
3	Sex	.96	.09	.00	2.52	1.22	.85	.01	1.14	1.67	.85	.12	.02	.33	.02	.17
	Trt	11.49N	10.29N	17.07N	1.29	.02	1.34	.02	2.01	.20	15.66N	13.56N	21.37N	6.04n	3.46	9.02N
	SxT	.05	.30	.06	.19	.57	.14	.26	.90	.27	.11	.28	.02	.01	.00	.08
4	Sex	6.77F	.77	1.34	5.67f	.48	.91	.20	5.10m	2.87	2.43	.00	.03	4.59f	.17	.79
	Trt	.05	4.89n	9.02N	.55	2.46	1.65	5.57b	.00	.03	35.33B	18.50B	23.17B	5.02b	.45	.78
	SxT	.17	.83	.90	.06	.32	.31	.01	.19	.34	.19	.12	.19	.91	2.58	2.78
5	Sex	3.64	.00	.11	4.64f	.21	.00	.70	2.63	4.07m	5.97f	1.20	.42	3.97f	.15	.01
	Trt	32.69N	33.21N	29.92N	15.03N	12.66N	11.41N	3.15	1.17	.43	2.64	.98	.68	19.65N	13.98N	10.92N
	SxT	.11	.14	.13	.16	.19	.18	.01	.08	.14	.31	.35	.35	.02	.01	.03

NOTE: Column A summarizes analysis of variance; Column B, covariance using Phonemes and Letter Names as covariates: Column C, covariance using all seven premeasures as covariates. All F ratios in Column A based on 1 and 174 d.f.; Column B, 1 and 172 d.f.; Column C, 1 and 167 d.f. Significant difference favoring I.T.A. is indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk indicates interaction significant at .05 level; two asterisks, .01 level. Projects in numerical order are Fry, Hahn, Hayes, Mazurkiewicz, and Tanyzer.

Spelling subtest, three of these differences favoring the Basal group. This lack of unanimity was further pointed out by the analysis of scores on the Word Study Skills subtest where two projects found significant treatment differences favoring I.T.A., but one project found a significant difference favoring the Basal treatment.

Again a covariance analysis was run using the Phonemes and Letter Names subtests as covariates. This covariance analysis was conducted within projects although simultaneously for all projects and is summarized in Columns B of Table 6:07. The results were very similar to those reported for the analysis of variance. One additional treatment difference favoring I.T.A. was found on the Word Reading subtest and the significant difference which had been found favoring the Basal treatment on the Vocabulary subtest was erased but no changes were reported for the Spelling and Paragraph Meaning subtests. On the Word Study Skills subtest the covariance analysis erased two of the three significant treatment differences which had been found in the analysis of variance. The use of covariance also tended to eliminate sex differences which had been found to favor girls. Evidently, the superiority of girls in reading achievement at the end of the year could be accounted for by their superiority in prereading capability at the beginning of the year.

The second covariance analysis, utilizing all seven premeasures as covariates, is reported in Columns C of Table 6:07. The utilization of seven premeasures instead of two changed matters very little. Generally speaking, the same conclusions would be drawn from either of these two covariance analyses. In this case, adding covariates beyond the first two served very little purpose.

The unadjusted and adjusted means for the Basal versus I.T.A. groups within each project are reported in Table 6:08. This table illustrates the actual extent of the difference between the two treatments. Much greater differences in mean performance can be noted for some projects than for others.

Analysis of Individual Outcome Measures

The Gilmore Oral Reading Test, the Fry Phonetically Regular Word Test, and the Gates Word Pronunciation Test were administered individually to a sample from each treatment. The analysis of these test scores followed the same pattern as that described for the Stanford Achievement Test results. However, although both across-projects and within-projects analyses were employed, only the within-projects results will be reported. In general, project by treatment interactions were found to exist, thereby making unambiguous interpretation of treatment differences across projects difficult.

Table 6:08

Unadjusted and Adjusted Stanford Means for the Basal vs I.T.A. Comparison

Project	Trt	Word Reading			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
FRY	Basal	20.2	21.2	20.6	19.9	21.0	20.4	23.2	24.0	23.3	10.8	11.4	11.1	33.9	35.3	34.6
	ITA	20.7	22.7	22.4	17.4	20.0	19.8	22.3	24.1	23.7	7.4	8.6	8.7	35.2	37.9	37.3
HAHN	Basal	22.5	22.1	22.0	21.8	21.2	21.2	21.7	21.3	21.0	13.2	12.9	13.0	38.5	38.2	37.9
	ITA	24.0	23.1	23.1	21.6	20.5	20.7	22.0	21.2	21.0	11.2	10.7	10.8	39.6	38.5	38.3
HAYES	Basal	18.5	23.6	23.7	19.3	25.6	25.8	22.0	26.4	26.5	9.0	12.1	12.2	34.2	40.8	40.8
	ITA	24.7	27.7	28.9	22.0	25.9	27.8	22.2	24.9	26.0	14.7	16.5	17.7	40.2	44.2	46.1
MAZURKIEWICZ	Basal	22.0	20.0	20.0	21.1	18.5	18.2	22.4	20.6	20.7	13.6	12.4	12.1	39.1	36.6	36.5
	ITA	21.8	21.8	21.6	20.1	20.4	19.7	20.4	20.6	20.6	8.9	9.1	8.5	36.1	35.8	35.5
TANYZER	Basal	17.5	17.7	18.1	16.1	16.0	16.5	20.5	20.4	20.9	10.2	10.1	10.8	33.8	34.2	35.2
	ITA	25.3	23.8	23.8	23.2	21.5	21.5	22.5	21.4	21.7	11.9	11.1	11.2	42.0	40.0	40.1

NOTE: Column A reports unadjusted means; Column B, means adjusted for premeasure differences on Phonemes and Letter Names; Column C, adjusted for all seven covariates.

Table 6:09 reports the number of subjects for whom complete information on the premeasures and individual tests was obtained for the Basal versus I.T.A. comparison. The within-projects analysis of variance on the premeasures is summarized in Table 6:10. Relatively few treatment differences on premeasures are reported. The random selection of pupils from each treatment apparently succeeded quite well in making the two groups of pupils similar in readiness for reading.

The within-projects analysis of variance and covariance of outcome measures is summarized in Table 6:11. As usual, Columns A summarize the analysis of variance, Columns B summarize an analysis of covariance using a minimum set of covariates, and Columns C report the analysis of covariance using all eight premeasures. (Throughout this chapter eight premeasures are recorded for the individual outcome measures analysis. The Pattern Copying test, which was not used in the analysis of Stanford scores, is used in all of the analyses of individual outcome measures.) As reported in Column C there were no differences between the I.T.A. subjects and the Basal subjects on the accuracy score of the Gilmore Oral Reading Test in four of the five projects. The one project which reported a significant difference between treatments indicated that these differences favored the I.T.A. group. In terms of reading rate, none of the five projects found significant differences between treatments. However, there were pronounced differences on the two Word Recognition tests. Four of the five projects reported significant differences on the Fry Word List, all of which favored the I.T.A. treatment. Three of the five projects found significant differences in favor of the I.T.A. treatment on the Gates test. This finding supports the results of the analysis of treatment differences on the Stanford Word Reading test where differences were also found to favor the I.T.A. approach.

The actual unadjusted and adjusted means for the I.T.A. and Basal treatments are reported in Table 6:12. The differences in mean performance on the Fry and Gates word lists are often quite striking.

Summary of Basal versus I.T.A. Comparisons

The I.T.A. and Basal approaches were of approximately equal effectiveness in terms of pupils' achievement on the Paragraph Meaning test. However, the I.T.A. treatment produced superior word recognition abilities as measured by the Word Reading subtest of the Stanford and the Fry and Gates word recognition lists. Evidence concerning the spelling ability of pupils in the two groups was inconclusive. Basal subjects were superior in spelling ability

Table 6:09

Subjects Used for the Analysis of Individual Outcome Measures for the Basal vs I.T.A. Comparison

Project	Trt.	Males	Females	Total
FRY	Basal	12	15	27
	ITA	23	14	37
HAHN	Basal	24	26	50
	ITA	23	23	46
HAYES	Basal	15	15	30
	ITA	15	15	30
MAZURKIEWICZ	Basal	12	13	25
	ITA	16	16	32
TANYZER	Basal	9	8	17
	ITA	8	10	18

Table 6:10

Within Projects Analysis of Variance on Premeasures for Basal vs I.T.A. Comparison

Project	Eff	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Pattern Copying	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
Fry	Sex	3.03	3.57	1.49	1.30	2.95	.10	.01	6.43f
	Trt	.05	.72	.83	1.66	.05	.75	.00	1.09
	SxT	1.47	.02	.13	.00	.25	.29	.04	.23
Hahn	Sex	.04	.50	1.13	.50	3.74	.00	.13	.33
	Trt	.58	.30	.01	2.49	4.05n	.02	3.66	.05
	SxT	.34	1.40	.38	1.12	.37	.08	.47	.00
Hayes	Sex	1.18	3.30	.12	.01	1.13	.02	.05	1.12
	Trt	5.33n	.25	.37	14.27B	1.20	2.19	.28	2.05
	SxT	.20	.00	.85	1.33	1.41	.24	1.13	1.25
Mauzrkiewicz	Sex	2.01	.08	1.73	1.06	.01	2.43	.26	.01
	Trt	1.04	1.79	.78	.69	.07	1.82	.50	.00
	SxT	.06	.12	.01	.05	.12	.03	.22	.19
Tanyzer	Sex	9.39F	4.46f	1.59	10.58F	.53	.07	3.75	5.66f
	Trt	4.38n	.76	.68	1.20	.70	2.90	1.82	3.87
	SxT	.30	.03	.35	1.20	.08	.00	1.78	.37

NOTE: Significant difference favoring I.T.A. indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. All F ratios based on 1 and 292 degrees of freedom.

Table 6:11

Within Projects Analysis of Variance and Covariance on Individual Outcome Measures for Basal vs I.T.A. Comparison

	Gilmore Accuracy			Gilmore Rate			Fry Word List			Gates Word List		
Effect	A	B	C	A	B	C	A	B	C	A	B	C
1 Sex	16.07F	12.95F	9.83F	16.39F	13.58F	10.24F	2.27	.46	.13	7.36F	4.15f	2.03
Treatment	.10	.35	.01	4.70b	5.21b	3.15	5.60n	7.25N	10.09N	.83	.91	2.16
Sex x Treatment	.00	.36	.20	.38	1.10	.99	.00	.45	.32	.48	2.37	2.18
2 Sex	.44	1.18	.47	.32	.45	.08	.53	.43	1.58	.04	.00	.25
Treatment	.01	.98	.52	1.11	2.50	1.97	11.75N	10.72N	11.05N	5.52n	4.04n	4.29n
Sex x Treatment	.00	.00	.27	.30	.14	.00	.05	.00	.11	.00	.01	.35
3 Sex	1.37	.70	.09	9.32F	8.28F	6.65f	2.42	1.55	.80	1.76	1.00	.08
Treatment	2.84	2.67	3.27	3.21	1.36	1.70	36.62N	36.86N	38.69N	28.38N	32.42N	37.49N
Sex x Treatment	.82	1.34	1.72	.28	.29	.41	.90	1.17	1.22	.47	.74	.96
4 Sex	.05	.56	.04	1.09	.41	1.34	.02	1.07	.35	.00	1.12	.50
Treatment	1.14	2.74	.76	1.43	.81	2.57	.83	.37	1.96	.00	.13	.04
Sex x Treatment	.45	.77	1.33	.14	.19	.37	.13	.25	.34	.22	.24	.15
5 Sex	1.85	.76	.61	.80	.12	.03	5.18f	.24	.53	1.18	1.45	1.56
Treatment	9.08N	4.78n	8.97N	.44	.02	.09	48.06N	45.50N	56.38N	28.83N	25.27N	35.10N
Sex x Treatment	1.55	2.26	2.14	1.41	1.49	1.13	1.28	1.93	2.06	.19	.24	.09

NOTE: Projects in numerical order are Fry, Hahn, Hayes, Mazurkiewicz, and Tanyzer. Column A summarizes analysis of variance; Column B, covariance using Phonemes, Pattern Copying, and Listening as covariates; Column C, covariance using all eight premeasures as covariates. All F ratios in Column A are based on 1 and 292 degrees of freedom; Column B, 1 and 289 d.f.; and Column C, 1 and 284 d.f. Significant difference favoring I.T.A. indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level.

Table 6:12

Unadjusted and Adjusted Means on Individual Outcome Measures

for the Basal vs I.T.A. Comparison

Project	Trt	Gilmore Accuracy A	B	C	Gilmore Rate A	B	C	Fry Word List A	B	C	Gates Word List A	B	C
FRY	Basal	23.9	27.6	25.6	59.8	62.9	58.5	5.4	7.5	6.8	12.3	14.4	13.5
	ITA	22.9	26.1	25.8	44.6	47.9	47.3	10.8	12.7	12.8	14.0	15.9	15.8
HAHN	Basal	24.9	24.5	23.3	67.6	66.4	63.2	10.4	10.0	9.2	15.6	15.3	14.5
	ITA	24.6	22.4	21.9	61.7	57.9	55.9	16.7	15.2	14.4	19.3	18.0	17.1
HAYES	Basal	19.2	25.2	25.9	65.2	75.7	77.4	3.8	8.3	8.9	11.4	15.3	15.7
	ITA	24.7	29.8	30.7	78.0	83.9	86.2	17.8	20.9	21.4	21.9	25.0	25.6
MAZURKIEWICZ	Basal	25.1	19.6	19.7	56.6	52.3	53.1	13.5	10.5	10.4	17.1	13.9	14.4
	ITA	21.5	15.0	17.4	65.5	58.6	63.9	15.7	11.8	13.3	17.3	13.3	14.7
TANYZER	Basal	23.4	23.3	22.8	45.9	45.8	46.2	3.8	3.8	3.3	9.9	9.9	9.9
	ITA	36.2	31.1	32.8	52.1	44.6	48.7	24.8	21.4	22.4	23.8	20.6	22.1

NOTE: Column A reports unadjusted means; Column B, means adjusted for Phonemes, Pattern Copying, and Listening; Column C, means adjusted for all eight premeasures.

in three projects but the I.T.A. subjects were superior in a fourth project. Furthermore, no differences were found between treatments in reading accuracy and rate as measured by the Gilmore Oral Reading Test.

In interpreting the results of the I.T.A. versus Basal comparisons it should be pointed out that all testing was done in traditional orthography. Furthermore, a child was judged to spell a word correctly only if he spelled it correctly in the traditional sense. No credit was given for spelling a word correctly according to the rules of I.T.A. Varying proportions of children in each of the projects were still receiving instruction in I.T.A. at the time of testing and had not made formal transition to traditional orthography. Therefore, many of the pupils were asked to take a test in an orthography which they had not used during their instruction in reading.

Basal versus Basal Plus Phonics Comparisons

The Basal plus Phonics versus Basal treatment comparison was analyzed in a manner similar to that outlined for the I.T.A. versus Basal comparison. However, in this section, as well as the sections which follow, the analysis will be presented in much less detail. Information about projects which were involved in the Basal versus Basal plus Phonics comparison is provided in Table 6:13. Four projects with varying numbers of students had in common a Basal treatment and a treatment which could be considered a basal reading program with supplementary phonics. The nature of the materials is also recorded in Table 6:13. Two of the four projects used exactly the same Basal plus Phonics program. Here again, however, any difference among programs within either the Basal or Basal plus Phonics treatments was ignored.

The first step again involved an analysis of variance on the premeasures and Stanford tests blocking on sex, treatment, and project. The across-projects analysis of variance on the premeasures is summarized in Table 6:14. Highly reliable project differences were found on each of the premeasures. A number of sex differences also showed girls predominating. Only two treatment differences were reported, both of these favoring the Basal plus Phonics subjects. Furthermore, only one treatment by project interaction was found to be significant.

The across-projects analysis of variance and covariance on the Stanford measures is reported in Table 6:15. Significant treatment differences on all five reading achievement measures were found to favor the Basal plus Phonics approach. Furthermore, sex differences were found to be significant and in favor of girls on three of the

Table 6:13

Materials and Numbers of Classes and Pupils for Basal vs Basal plus Phonics

	Bordeaux		Hayes		Manning		Murphy	
	Classes	Pupils	Classes	Pupils	Classes	Pupils	Classes	Pupils
Numbers								
Basal	5	111	5	87	13	310	10	214
Basal plus Phonics	5	119	5	103	12	260	20	518
Materials								
Basal	Scott-Foresman		Scott-Foresman		Ginn		Scott-Foresman	
Basal plus Phonics	Scott-Foresman + Speech to Print		Scott-Foresman + Phonic Word Power		Ginn + Special Phonic Exercises		Scott-Foresman + Speech to Print	

Table 6:14

Across Projects Analysis of Variance on Premeasures for Basal vs Basal Plus Phonics Comparison

Effect	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningnam I.Q.
Sex	4.90f	5.22f	5.19f	2.26	.63	.12	5.65f
Treatment	1.19	4.94n	.51	.00	1.56	6.39n	.02
Sex x Treatment	.06	.12	.49	.01	.02	.03	.06
Project	12.40**	8.23**	14.09**	12.85**	3.68*	27.29**	19.21**
Sex x Project	.03	.05	.40	.20	.39	.47	.09
Trt x Project	.73	4.39**	1.62	1.74	2.19	.26	1.05
Sex x Trt x Proj	.60	.05	.71	.13	.06	.73	.28

NOTE: Significant difference favoring Basal plus Phonics indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk indicates project difference or interaction significant at .05 level; two asterisks, .01 level. Numerator degrees of freedom equal one (1) except for all effects involving project in which case numerator d.f. equal 3. Denominator d.f. equal 134.

Table 6:15

Across Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Basal Plus Phonics Comparison

	Word Recognition			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
Effect	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Sex	6.13f	2.74	4.68f	16.80F	13.32F	16.10F	.53	.18	.00	6.93F	3.42	4.40f	5.21f	2.57	3.15
Trt	20.86N	23.43N	18.30N	15.89N	16.43N	12.98N	14.16N	12.15N	8.66N	22.37N	16.19N	13.53N	24.47N	24.10N	21.94N
SxT	.08	.28	.13	.39	.40	.82	.00	.01	.08	.01	.00	.04	.00	.00	.08
Proj	14.82**	29.17**	13.85**	9.89**	22.30**	7.28**	8.77**	17.45**	8.02**	11.04**	17.80**	3.54*	19.38**	22.65**	13.88**
SxP	.18	.14	.09	.43	.51	.51	.21	.29	.34	.10	.12	.17	.16	.09	.11
TxP	1.25	.07	.21	1.26	.86	.76	3.45*	1.95	2.11	2.52	.90	.75	1.77	.60	.52
SxTxP	.30	.37	.41	.35	.37	.52	.73	.81	1.18	.30	.25	.21	.38	.24	.10

NOTE: Column A summarizes analysis of variance; Column B, covariance using Letter Names and Listening as covariates; Column C, covariance using all seven premeasures as covariates. Significant difference favoring Basal plus Phonics indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk indicates project difference or interaction significant at .05 level; two asterisks, .01 level. Numerator degrees of freedom equal 1 for all effects except those involving project which are based on 3 d.f. Denominator d.f. are 134, 132, and 127 for Columns A, B, and C respectively.

five outcome measures even when the scores were adjusted for premeasure differences. Similarly, highly reliable project differences were found on all measures in both covariance analyses, again indicating that projects differed on important reading-related characteristics other than pupil readiness. Perhaps the most interesting information in Table 6:15 is that regarding the treatment by project interactions. In the covariance analyses no treatment by project interactions were found to be significant. Apparently, the Basal plus Phonics and Basal treatments were operating in the same fashion within each project. This analysis graphically illustrates the superiority of the Basal plus Phonics approach over the Basal alone.

Despite the absence of treatment by project interactions, in the interests of consistency, a within-projects analysis was also employed. The analysis of variance on premeasures is reported in Table 6:16. Except for one project, no treatment difference on any premeasure was found to exist. The actual premeasure means by experimental treatment are reported in Table 6:17. The similarity of treatment means on the various premeasures within projects demonstrates the effectiveness of the random assignment of pupils or classes to treatment.

The within-projects analysis of variance and covariance on the Stanford measures is summarized in Table 6:18. It is clearly evident that the superiority of the Basal plus Phonics treatment was not as clear-cut in this within-projects analysis as it had been in the across-projects analysis. In the covariance analysis reported in Columns C, none of the four projects showed significant treatment differences on the Word Reading variable. Only one significant difference was found for the Paragraph Meaning subtest, the Vocabulary subtest, and the Spelling subtest, while two significant differences were found on the Word Study Skills test. All significant differences favored the Basal plus Phonics approach but the superiority of this program was not nearly so apparent in this type of analysis.

The unadjusted and adjusted Stanford means for the Basal versus Basal plus Phonics comparison are reported in Table 6:19. The table indicates that practically all of the mean differences favored the Basal plus Phonics treatment. In the within-projects analysis many of these differences were not statistically significant. However, when the data from the four projects were pooled in the across-projects analysis the resulting differences did prove to be significant, favoring the Basal plus Phonics approach.

Table 6:16

Within Projects Analysis of Variance on Premeasures for the Basal vs Basal Plus Phonics Comparison

Project	Effect	Murphy-Durrell Phonemes	Murphy-Durrell Total Letters	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningha I.Q.
Bordeaux	Sex x Treatment	1.43	.00	1.91	.23	.21	1.98	.39
	Treatment	.01	.04	1.57	2.96	.22	.32	.85
	Sex	.37	.52	2.46	.43	.01	.47	.23
Hayes	Sex x Treatment	.39	.00	.42	.04	.01	.01	.03
	Treatment	.01	1.28	.01	1.24	.80	.04	.95
	Sex	.85	1.17	2.12	1.26	.04	.09	1.50
Manning	Sex x Treatment	.01	.00	.04	.12	.02	.26	.41
	Treatment	4.01n	16.45N	3.93n	.03	5.86n	.12	1.10
	Sex	1.40	1.11	.69	.97	1.70	.52	1.68
Murphy	Sex x Treatment	.04	.24	.18	.02	.01	.02	.06
	Treatment	.04	.26	1.75	1.93	.44	1.45	.29
	Sex	2.35	2.60	1.21	.21	.00	.42	2.35

NOTE: Significant difference favoring Basal plus Phonics indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance, lower case letter .05 level. All F ratios based on 1 and 134 degrees of freedom.

Table 6:17

Premeasure Means for the Basal vs Basal plus Phonics Comparison

Project	Trt	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
BORDEAUX	Basal	21.2	31.6	9.6	14.2	8.0	9.9	43.7
	B+P	21.5	30.8	8.3	18.1	8.3	9.5	41.6
HAYES	Basal	14.7	24.0	7.0	13.0	7.2	7.8	33.3
	B+P	15.0	19.9	7.1	10.6	6.6	8.0	31.1
MANNING	Basal	24.5	28.0	9.3	15.0	6.8	9.5	32.1
	B+P	28.8	37.4	10.6	14.7	7.8	9.3	33.7
MURPHY	Basal	21.2	29.9	6.9	8.7	8.1	7.5	33.7
	B+P	21.6	31.1	7.7	10.6	7.8	7.0	34.4

Table 6:18

Within Projects Analysis of Variance and Covariance on Stanford Measures for the Basal vs Basal Plus Phonics Comparison

		Word Recognition			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	Sex	2.10	1.48	1.69	4.70f	4.33f	4.74f	.88	.36	.54	1.58	1.06	1.28	.74	.29	.38
	Trt	.18	.71	.15	.01	.02	.07	.16	.50	.16	.27	.48	1.12	.00	.04	.16
	SxT	.21	.02	.01	.03	.04	.19	.34	.16	.00	.47	.41	.15	1.02	.62	.19
2	Sex	.77	.14	.35	4.58f	3.87	4.53f	.21	.01	.00	1.60	.82	1.02	.54	.13	.12
	Trt	.32	1.82	2.14	.01	.41	.49	2.47	1.70	1.93	.81	2.08	2.15	.26	.91	1.08
	SxT	.09	.15	.28	.00	.00	.06	.01	.01	.23	.05	.06	.01	.08	.10	.01
3	Sex	.96	.69	1.61	3.73	3.98f	5.61f	.04	.04	.01	2.18	1.45	2.14	.71	.51	.71
	Trt	12.13N	3.76	2.52	7.64N	1.68	1.14	11.29N	3.01	2.64	19.77N	8.38N	7.86N	14.23N	6.66n	7.45N
	SxT	.41	1.02	.69	.00	.01	.00	.39	.78	.55	.01	.03	.00	.04	.01	.04
4	Sex	2.81	.95	1.76	4.97f	2.90	3.95f	.03	.64	.34	1.85	.57	.80	3.69	1.96	2.59
	Trt	2.20	3.75	3.72	5.65n	8.58N	8.28N	4.45n	6.07n	6.06n	1.10	1.00	.92	3.76	5.13n	4.56n
	SxT	.30	.21	.39	1.51	1.66	2.47	1.45	1.46	2.93	.40	.25	.55	.02	.00	.11

NOTE: Projects in numerical order are Bordeaux, Hayes, Manning and Murphy. Column A summarizes analysis of variance; Column B, covariance using Letter Names and Listening as covariates; Column C, covariance using all seven premeasures as covariates. All F ratios in Column A are based on 1 and 134 d.f.; Column B, 1 and 132 d.f.; Column C, 1 and 127 d.f. Significant difference favoring Basal plus Phonics is indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance, lower case letter, .05 level.

Table 6:19

Unadjusted and Adjusted Stanford Means for the Basal vs Basal plus Phonics Comparison

Project	Trt	Word Reading			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
BORDEAUX	Basal	19.0	17.6	18.5	20.5	18.9	18.4	19.8	18.9	19.2	9.8	9.3	8.4	32.5	30.9	29.6
	B+P	19.8	18.8	19.0	20.3	19.2	18.9	20.5	19.8	19.7	10.7	10.4	10.0	32.5	31.4	30.5
HAYES	Basal	18.5	20.3	20.2	19.3	21.2	21.0	22.0	23.5	23.6	9.0	10.2	10.2	34.2	35.9	35.9
	B+P	19.6	22.3	22.3	19.5	22.4	22.3	19.4	21.6	21.8	10.6	11.5	12.4	35.4	38.0	38.0
MANNING	Basal	16.0	15.7	16.2	14.7	14.3	15.8	17.4	17.3	18.3	4.9	5.1	6.5	27.5	27.1	29.1
	B+P	20.1	17.7	17.8	18.7	16.0	17.1	20.9	19.0	19.7	9.7	8.2	9.6	33.4	31.0	32.9
MURPHY	Basal	22.4	23.0	22.5	20.2	20.9	20.1	21.6	22.0	21.3	11.1	11.3	10.4	37.0	37.8	36.7
	B+P	24.0	24.7	24.2	23.5	24.3	23.4	23.7	24.1	23.2	12.2	12.3	11.4	39.9	40.8	39.4

NOTE: Column A reports unadjusted means; Column B, means adjusted for premeasure differences on Letter Names and Listening; Column C, adjusted for all seven covariates.

Analysis of Individual Outcome Measures

The number of subjects who comprised the Basal and Basal plus Phonics sample groups for the individual analysis is reported in Table 6:20. The number of subjects chosen for the individual tests varied considerably from project to project. The within-projects analysis of variance on premeasures for the sample subjects is reported in Table 6:21. Only one significant sex difference was found and relatively few treatment differences were reported. The analysis of variance and covariance on the individual outcome measures is reported in Table 6:22. The covariance analysis reported in Columns C found no differences in rate of reading between the two treatments. One of the four projects found a significant difference favoring the Basal group in reading accuracy. Differences on the Fry and Gates word lists tended to favor the Basal plus Phonics group with three such differences reaching statistical significance. The actual unadjusted and adjusted treatment means are reported on Table 6:23. The Basal plus Phonics treatment tended to surpass the Basal treatment in performance on the two word lists but no trend was apparent on the Gilmore Oral Reading Test.

Summary of Basal versus Basal plus Phonics Comparison

In general, basal programs accompanied by supplementary phonics materials led to significantly greater achievement in reading than did basal materials alone. This superiority was especially pronounced in mean performance on the Stanford Achievement Test and the Fry and Gates word recognition tests. Practically all differences on these measures favored the Basal plus Phonics group (particularly in the across-projects analysis) even though some of the differences failed to reach statistical significance. No differences in rate or accuracy of reading were found between the two treatments.

Basal versus Language Experience Comparisons

Four projects had as experimental treatments both the Language Experience approach and the Basal reader approach. Information about the numbers of classes involved and the nature of the basal readers is provided in Table 6:24. For purposes of this analysis, the Basal approach was considered a single method even though a variety of basal readers were employed. Likewise, the Language Experience approach differed considerably in its implementation from one project to another. However, the Language Experience approaches had more similarities than differences and therefore were considered to constitute a single treatment.

Table 6:20

Subjects Used for the Analysis of Individual Outcome Measures for the Basal vs Basal Plus Phonics Comparison

Project	Trt.	Males	Females	Total
BORDEAUX	Basal	9	10	19
	B+P	10	10	20
HAYES	Basal	15	15	30
	B+P	15	15	30
MANNING	Basal	29	35	64
	B+P	30	26	56
MURPHY	Basal	26	22	48
	B+P	57	41	98

Table 6:21

Within Projects Analysis of Variance on Premeasures for Basal vs Basal Plus Phonics Comparison

Project	Eff	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Pattern Copying	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
Manning	Sex	.28	.24	.22	.11	.39	4.42m	.05	.95
	Trt	3.88	7.98N	7.65N	.25	.40	5.16n	2.17	.02
	SxT	.14	.26	.20	1.90	.50	.24	.70	.04
Hayes	Sex	.25	.41	.81	.01	3.11	.26	.01	3.18
	Trt	.00	1.49	.54	12.31B	3.11	.49	.46	4.55b
	SxT	.01	.84	.16	.74	.31	1.36	1.13	.07
Murphy	Sex	.30	.08	.32	.70	.99	1.70	.96	.42
	Trt	.49	.65	3.05	11.79N	.39	.16	.08	2.29
	SxT	1.07	.00	1.71	3.56	.04	.80	1.15	.09
Bordeaux	Sex	.08	.84	.63	.33	1.38	.05	.76	.20
	Trt	.32	2.47	.01	.03	4.93n	4.67n	.01	.23
	SxT	.50	.12	.14	.35	.09	.06	1.93	.08

NOTE: Significant difference favoring Basal plus Phonics indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. All F ratios based on 1 and 349 degrees of freedom.

Table 6:22

Within Projects Analysis of Variance and Covariance on Individual Outcome Measures

for Basal vs Basal plus Phonics Comparison

	Gilmore Accuracy			Gilmore Rate			Fry Word List			Gates Word List		
Effect	A	B	C	A	B	C	A	B	C	A	B	C
1 Sex	1.14	.63	.78	2.42	1.99	2.12	.01	.37	.34	.49	.08	.13
Treatment	1.53	.03	1.40	.14	.25	.00	4.29n	1.87	3.87	.90	.01	.45
Sex x Treatment	.75	1.22	.85	.58	.75	.57	1.00	1.46	1.00	.73	1.30	.87
2 Sex	.39	.09	.07	2.14	1.69	1.32	.00	.18	.53	.25	.02	.07
Treatment	.05	2.73	2.81	.43	.00	.01	.08	1.96	1.55	.29	.30	.20
Sex x Treatment	.10	.58	.62	2.44	2.46	2.89	.75	.38	.45	.04	.04	.05
3 Sex	2.59	4.60f	2.80	1.55	2.43	2.11	.19	.25	.00	.65	.97	.25
Treatment	4.92n	.43	1.44	4.05n	.69	.68	6.37n	1.55	2.32	9.18N	2.72	4.58n
Sex x Treatment	.13	.03	.07	1.62	3.06	2.68	.23	.01	.16	.19	.00	.16
4 Sex	1.13	2.58	1.38	1.64	2.60	2.15	.00	.03	.16	.00	.03	.09
Treatment	.82	3.98b	4.56b	1.33	2.77	3.08	37.25N	38.54N	45.12N	15.48N	15.62N	17.46N
Sex x Treatment	.21	.23	1.47	.46	.49	.08	.79	.83	1.74	1.86	2.56	4.92*

NOTE: Projects in numerical order are Bordeaux, Hayes, Manning, and Murphy. Column A summarizes analysis of variance; Column B, covariance using Letter Names, Pattern Copying, and Meaning as covariates; Column C, covariance using all eight premeasures as covariates. All F ratios in Column A are based on 1 and 349 d.f.; Column B, 1 and 346 d.f.; and Column C, 1 and 341 d.f. Significant difference favoring Basal plus Phonics indicated by N or n, Basal by B or b, female by F or f, male by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk signifies .05 level of significance; two asterisks, .01 level.

Table 6:23

Unadjusted and Adjusted Means on Individual Outcome Measures

for the Basal vs Basal Plus Phonics Comparison

Project	Trt	Gilmore Accuracy			Gilmore Rate			Fry Word List			Gates Word List		
		A	B	C	A	B	C	A	B	C	A	B	C
BORDEAUX	Basal	21.4	24.2	19.6	58.4	62.6	58.5	5.0	6.4	4.8	10.9	12.6	10.3
	B+P	25.8	24.7	22.8	61.2	59.2	58.7	9.4	8.9	8.3	13.1	12.4	11.5
HAYES	Basal	19.2	22.5	22.7	65.2	70.1	71.1	3.8	5.5	6.1	11.4	13.4	13.6
	B+P	19.8	26.4	26.4	61.3	70.3	70.7	4.3	7.6	7.9	10.4	14.2	14.2
MANNING	Basal	14.8	14.9	14.5	52.0	52.8	52.0	2.1	2.1	1.9	8.7	8.8	8.6
	B+P	19.3	16.0	16.4	60.5	56.0	55.2	5.1	3.4	3.4	12.5	10.5	10.7
MURPHY	Basal	30.9	30.8	31.6	61.3	60.5	61.8	13.7	13.7	13.6	17.3	17.2	17.6
	B+P	29.1	27.6	28.4	56.6	54.3	55.2	20.7	20.0	20.3	22.1	21.2	21.7

NOTE: Column A reports unadjusted means; Column B, means adjusted for Letter Names, Pattern Copying, and Meaning; Column C, means adjusted for all eight premeasures.

Table 6:24

Materials and Numbers of Classes and Pupils for Basal vs Language Experience

	Cleland		Hahn		Kendrick		Stauffer	
	Classes	Pupils	Classes	Pupils	Classes	Pupils	Classes	Pupils
Numbers								
Basal	12	376	12	276	27	652	10	219
Language Experience	11	287	12	269	27	637	10	238
Materials								
Basal	Scott-Foresman		Variety		Ginn		Variety	

Again the first step was to carry out an analysis of variance on both the premeasures and the post-measures blocking on treatment, sex, and project. The across-projects analysis of variance on premeasures is reported in Table 6:25. Among the interesting results of this analysis were the superiority of girls on the premeasures, the highly reliable project differences on six of the seven premeasures, the treatment differences on four of the seven premeasures, and the absence of treatment by project interactions on six of the seven premeasures.

The analysis of variance and covariance across projects on the Stanford measures is reported in Table 6:26. The differences in mean achievement among projects is graphically illustrated by the highly reliable F ratios reported for the projects main effect in the two covariance analyses. It is also apparent from Table 6:26 that sex differences in achievement tend to disappear when differences in premeasure capability are taken into account. Treatment differences in the analysis of variance as reported in Columns A tended to be negligible. However, the analysis of covariance reported in Columns B, in which Phonemes and Identical Forms are used as covariates, found significant differences favoring the Language Experience approach on the Word Reading test, the Vocabulary test, the Spelling test, and the Word study Skills test. Strangely enough, these treatment differences were erased for all but the Word Reading test when covariance analysis was performed using all seven premeasures as covariates. This unusual set of events is probably a result of the peculiar nature of the treatment differences on premeasures as reported in the across-projects analysis in Table 6:25. Significant treatment differences were found in the across-projects analysis for four of the seven premeasures. In two cases the difference favored the Basal group, but in the other two cases the difference favored the Language Experience approach. At any rate, one would likely draw different conclusions about the effectiveness of Language Experience and Basal approaches depending on which of the analyses he considers. Quite different results were obtained by the analysis of variance reported in Columns A and the analysis of covariance reported in Columns B. Similarly, quite different results were found between the covariance analyses reported in Columns B and C.

One further finding of note in the across-projects analysis of the Stanford measures concerns the treatment by project interactions reported in Table 6:26. The covariance analysis using all seven premeasures as covariates found significant treatment by project interactions on four of the five Stanford measures. This finding made it necessary to look to the within-projects analysis for an assessment of the relative effectiveness of the Basal and Language Experience programs. However, it would be of interest to find the reason for the project by treatment interactions. The means reported

Table 6:25

Across Projects Analysis of Variance on Premeasures for Basal vs Language Experience Comparison

Effect	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
Sex	11.31F	10.06F	4.23f	8.82F	5.70m	.32	7.16F
Treatment	9.92B	1.54	4.18n	11.99B	5.29n	.61	1.89
Sex x Treatment	.76	.03	.06	.55	.07	.06	.45
Project	36.37**	18.54**	18.17**	1.64	16.43**	7.23**	7.95**
Sex x Project	.06	.41	.40	.11	.10	.33	.23
Trt x Project	11.17**	1.20	.37	2.03	2.19	1.42	1.27
Sex x Trt x Proj	.11	.20	.08	.27	.16	.56	.45

NOTE: Significant difference favoring Language Experience indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk indicates project difference or interaction significant at .05 level; two asterisks, .01 level. Numerator degrees of freedom equal 1 except for all effects involving project in which numerator d.f. equal 3. Denominator d.f. equal 226.

Table 6:26

Across Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Language Experience Comparison

Effect	Word Reading A	B	C	Paragraph Meaning A	B	C	Vocabulary A	B	C	Spelling A	B	C	Word Study Skills A	B	C
Sex	7.57F	.00	.81	18.25F	5.56m	6.95F	.12	7.44M	3.10	12.42F	2.11	2.98	8.16F	.06	.98
Trt	2.53	35.92N	8.40N	1.44	2.28	.34	2.09	24.66N	1.49	.03	6.77N	.06	.03	14.60N	.21
SxT	.11	.28	.16	.00	.00	.03	.51	.98	.42	.06	.08	.02	.09	.21	.04
Proj	25.81**	68.28**	52.44**	30.44**	75.57**	62.78**	11.65**	22.91**	20.15**	30.87**	60.91**	49.06**	14.88**	53.87**	43.27*
SxP	.10	.40	.26	.13	.25	.33	.10	.25	.27	.01	.01	.03	.11	.28	.13
TxP	2.23	1.43	2.95*	5.49**	2.57	5.26**	.56	3.35*	4.19**	1.40	.74	.88	1.04	2.64	2.86*
SxTxP	.20	.22	.23	.28	.27	.34	.45	.45	.27	.17	.14	.15	.33	.31	.25

NOTE: Column A summarizes analysis of variance; Column B, covariance using Phonemes and Identical Forms as covariates; Column C, covariance using all seven premeasures as covariates. Significant difference favoring Language Experience indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk indicates project difference or interaction significant at .05 level; two asterisks, .01 level. Numerator degrees of freedom are 1 for all effects except those involving project which are based on 3 d.f. Denominator d.f. are 226, 224, and 219 for Columns A, B, and C respectively.

for the Stanford tests and the treatments within each project on Table 6:30 (Columns C) reveal that the Language Experience subjects in each of the projects were superior on the Word Reading test. However, the extent of the superiority varied from project to project, thereby bringing about a significant project by treatment interaction effect. On the Paragraph Meaning subtest, the Language Experience treatment was superior in three of the four projects although the extent of the superiority varied considerably. However, in the fourth project the Basal treatment was superior. A similar situation occured with respect to the Vocabulary subtest. On the Word Study Skills subtest the difference in two projects favored the Basal treatment, but in the other two projects the difference favored the Language Experience group. Therefore, on all of the subtests except the Word Reading test, the significant project by treatment interaction was caused by treatment differences favoring one approach in one project, the other approach in another project.

Because of the treatment by project interactions it was necessary to perform a within-project analysis. The analysis of variance on premeasures is reported on Table 6:27. A number of treatment differences were found in the various projects. Evidently, the process of assigning students or classes to treatments did not achieve the desired result of placing pupils of equal prereading capability in the two treatment groups. Relatively few sex differences were found to be significant in these four projects. The actual mean performance of the various treatment groups within projects on the readiness measures is reported in Table 6:28.

The analysis of variance and covariance on the Stanford measures is reported in Table 6:29. One striking finding again is absence of significant sex by treatment interactions in any of the projects. Neither the Basal nor Language Experience approach was uniquely advantageous or disadvantageous for boys or girls. Treatment differences generally favored the Language Experience approach. Columns C of Table 6:29 report the covariance analysis using all seven premeasures as covariates. In this analysis two significant differences favoring the Language Experience approach were found for the Word Reading test. Two significant differences were likewise found for the Paragraph Meaning subtest, but one of the significant differences favored each of the two treatments. No significant differences were found on the Spelling test and one of the four projects found a significant difference favoring the Language Experience treatment on both the Vocabulary and Word Study Skills tests.

The unadjusted and adjusted means for each of the analyses are reported in Table 6:30. The adjusted means are generally quite similar for treatment groups in each of the projects. It is unlikely that even those differences which were found to be statistically significant were of much practical significance.

Table 6:27

Within Projects Analysis of Variance on Premeasures for the Basal vs Language Experience Comparison

Project	Effect	Murphy-Durrell Phonemes	Murphy-Durrell Total Letters	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningha I.Q.
Cleland	Sex x Treatment	.36	.25	.09	.69	.11	.71	.02
	Treatment	4.49b	.86	.03	3.33	1.18	.46	.15
	Sex	2.34	2.14	.06	.89	.38	.01	1.27
Hahn	Sex x Treatment	.00	.01	.06	.02	.27	.07	.06
	Treatment	.14	.17	.29	.11	.42	.85	.05
	Sex	3.18	3.56	.64	1.50	1.10	.87	.41
Kendrick	Sex x Treatment	.02	.15	.15	.00	.00	.50	.29
	Treatment	30.22B	4.04n	3.99n	2.74	8.69N	2.65	5.32n
	Sex	3.87f	1.85	4.58f	4.08f	2.78	.01	3.22
Stauffer	Sex x Treatment	.03	.22	.01	.67	.18	.45	1.42
	Treatment	8.98N	.09	1.11	11.80B	1.44	.87	.10
	Sex	2.09	3.73	.16	2.67	1.74	.42	2.96

NOTE: Significant difference favoring Language Experience indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance, lower case letter .05 level. All F ratios based on 1 and 226 degrees of freedom.

Table 6:28

Premeasure Means for the Basal vs Language Experience Comparison

Project	Trt	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
CLELAND	Basal	24.7	34.9	10.0	19.4	8.7	9.2	37.1
	LE	[illegible]0.2	32.9	10.1	16.1	8.2	8.9	36.5
HAHN	Basal	26.9	35.5	8.6	18.7	9.9	9.5	40.0
	LE	27.6	36.3	9.0	18.1	10.2	9.2	40.3
KENDRICK	Basal	34.2	33.9	9.8	17.8	8.4	9.4	37.5
	LE	26.6	36.7	10.7	15.9	9.3	9.8	39.8
STAÜFFER	Basal	13.9	25.8	7.1	19.0	7.4	8.3	35.6
	LE	20.8	26.5	7.8	12.4	8.0	8.7	35.1

Table 6:29

Within Projects Analysis of Variance and Covariance on Stanford Measures for the Basal vs Language Experience Comparison

		Word Recognition			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	Sex	1.10	.03	.07	3.67	1.30	1.83	.06	2.93	2.06	1.98	.29	.63	1.22	.00	.14
	Trt	1.45	17.46N	14.10N	.79	10.03N	7.00N	2.09	15.38N	12.42N	1.19	.21	.13	.54	11.34N	7.26N
	SxT	.25	.15	.18	.72	.63	.85	.38	.29	.27	.19	.15	.18	.07	.01	.01
2	Sex	.69	.63	.05	5.18f	1.84	3.59	.00	2.76	1.12	2.88	.44	1.20	.83	.38	.00
	Trt	1.61	2.53	1.78	.21	.14	.00	.63	.72	.84	.45	.49	.16	.54	.65	.33
	SxT	.28	.52	.39	.02	.02	.00	.12	.17	.30	.21	.28	.25	.18	.30	.28
3	Sex	4.61f	.51	1.35	8.22F	3.38	3.41	.24	1.73	.43	5.35f	1.22	1.23	4.01f	.29	.68
	Trt	.38	19.39N	.08	13.07B	.01	6.34b	.01	20.01N	.98	.47	8.25N	.71	1.32	11.92N	1.13
	SxT	.07	.27	.27	.05	.17	.17	.44	.96	.43	.01	.04	.02	.04	.03	.12
4	Sex	1.46	.00	.18	1.56	.04	.18	.11	1.10	.82	2.25	.28	.49	2.42	.22	.70
	Trt	6.08b	2.68	5.30b	3.53	.46	1.46	1.24	.00	.94	2.09	.61	2.00	.77	.18	.09
	SxT	.11	.01	.01	.05	.00	.04	.94	.93	.25	.17	.04	.00	.80	.80	.38

NOTE: Projects in numerical order are Cleland, Hahn, Kendrick, and Stauffer. Column A summarizes analysis of variance; Column B, covariance using Phonemes and Identical Forms as covariates; Column C, covariance using all seven premeasures as covariates. All F ratios in Column A based on 1 and 226 d.f.; Column B, 1 and 224 d.f.; and Column C, 1 and 219 d.f. Significant difference favoring language experience indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance, lower case letter, .05 level.

Table 6:30

Unadjusted and Adjusted Stanford Means for the Basal vs Language Experience Comparison

Project	Trt	Word Reading			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
CLELAND	Basal	22.6	22.7	22.5	25.5	25.7	25.7	23.0	23.1	23.1	16.0	16.5	15.8	39.1	39.3	39.1
	LE	24.1	25.5	25.5	26.8	28.8	28.8	24.6	25.8	25.7	14.8	15.6	15.5	40.4	42.4	42.2
HAHN	Basal	22.0	22.7	21.8	21.8	21.9	21.0	21.7	21.8	20.6	13.2	13.5	12.8	38.5	38.9	39.5
	LE	24.0	23.8	22.8	22.5	22.1	21.1	22.5	22.3	21.2	13.9	13.9	13.1	39.8	39.6	38.1
KENDRICK	Basal	19.3	16.6	17.8	19.7	16.3	17.6	21.5	19.3	21.2	10.2	8.5	9.4	34.8	31.2	33.1
	LE	18.8	18.0	18.0	15.9	15.1	15.6	21.6	21.0	20.6	9.6	8.9	8.8	33.5	32.4	32.2
STAUFFER	Basal	16.0	20.9	20.2	15.9	21.9	20.8	18.4	22.5	21.2	9.0	12.7	11.6	33.8	40.7	39.1
	LE	19.2	21.7	22.2	19.1	22.0	22.4	19.7	21.7	22.0	10.7	12.7	13.2	35.4	38.9	39.4

NOTE: Column A reports unadjusted means; Column B, means adjusted for premeasure differences on Phonemes and Learning Rate; Column C, adjusted for all seven covariates.

Analysis of Individual Outcome Measures

The projects which were used to analyze Language Experience versus Basal treatment differences on the individual tests are listed on Table 6:31. This table records the number of students who comprised the sample for each treatment within each project. One of the four projects which was used in the analysis of Stanford measures is not included in this analysis because of the unavailability of sample data. An indication of the comparability of the Language Experience and Basal subjects within projects can be ascertained from Table 6:32. This table summarized an analysis of variance conducted on premeasures. In two of the three projects significant treatment differences on certain premeasures are indicated.

The analysis of variance and covariance on the individual outcome measures is presented in Table 6:33. Again there is no evidence of sex by treatment interaction in the second covariance analysis. Furthermore, in most cases sex differences were not found in rate of reading and only one difference, that favoring the Language Experience approach, was found in Reading Accuracy. One of the three projects reported a significant difference favoring the Language Experience approach on both the Fry and Gates word lists. The unadjusted and adjusted means for each treatment group within each project are recorded in Table 6:34. It is difficult to ascertain any definite trend regarding the effectiveness of the two treatments in terms of achievement on the individual measures.

Summary of Basal versus Language Experience Comparison

Relatively few significant differences were found between the Language Experience and Basal approaches. Those significant differences which were found to exist generally favored the Language Experience approach. However, these sporadic differences were often not of much practical significance in terms of actual reading achievement. Little was found in this analysis to support a claim of superiority by either the Language Experience or Basal method.

Basal versus Linguistic Comparisons

Three projects were involved in the assessment of the relative effectiveness of Basal and Linguistic programs. Information concerning the number of students and types of materials which comprised the Basal and Linguistic groups is provided in Table 6:35. Three different sets of basal readers were used in the three projects and four types of linguistic readers were employed in the Linguistic group. Again the assumption was made that the Basal programs had a great deal in common with one another and that the Linguistic programs also had many similarities.

Table 6:31

Subjects Used for the Analysis of Individual Outcome Measures for the Basal vs Language Experience Comparison

Project	Trt.	Males	Females	Total
HAHN	Basal	24	26	50
	LE	31	20	51
KENDRICK	Basal	25	24	49
	LE	24	25	49
STAUFFER	Basal	20	19	39
	LE	19	15	34

Table 6:32

Within Projects Analysis of Variance on Premeasures for Basal vs Language Experience Comparison

Project	Eff	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Pattern Copying	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
Hahn	Sex	.00	2.63	1.16	.23	1.97	.82	.56	.02
	Trt	1.78	.01	.18	.09	2.18	.29	.02	.60
	SxT	.12	.10	.30	1.67	.74	1.49	.09	.12
Kendrick	Sex	2.32	.30	2.66	.36	9.77F	.01	3.26	.05
	Trt	5.64b	1.74	1.38	.05	.80	4.13n	4.06n	5.46n
	SxT	.04	.12	.28	.10	.12	.51	.18	.00
Stauffer	Sex	14.89F	14.59F	2.21	1.95	.92	.03	7.26F	12.75F
	Trt	7.60N	.70	1.59	1.87	9.92B	2.96	.27	.06
	SxT	.07	.40	1.03	.05	.09	.11	1.21	.00

NOTE: Significant difference favoring Language Experience indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. All F ratios based on 1 and 260 degrees of freedom.

Table 6:33

Within Projects Analysis of Variance and Covariance on Individual Outcome Measures for Basal vs Language Experience Comparison

Effect	Gilmore Accuracy			Gilmore Rate			Fry Word List			Gates Word List		
	A	B	C	A	B	C	A	B	C	A	B	C
1 Sex x Treatment	.94	2.88	2.49	1.14	1.80	2.09	1.52	4.10*	3.47	1.40	4.14*	3.47
Treatment	.56	.01	.01	.02	.06	.10	.14	1.98	1.76	.18	.09	.04
Sex	3.33	2.02	2.30	6.37f	4.79f	4.71f	.36	.00	.01	.93	.15	.23
2 Sex x Treatment	.31	.13	.11	1.03	.87	.67	.04	.33	.30	.05	.00	.00
Treatment	1.90	2.79	3.30	.10	.34	.43	.01	.00	.02	.01	.23	.12
Sex	4.62f	1.66	1.63	1.54	.53	.50	1.42	.10	.06	1.64	.21	.11
3 Sex x Treatment	.46	.19	.20	.01	.12	.13	1.56	1.49	1.42	1.21	1.01	.88
Treatment	10.17N	14.74N	13.14N	.76	1.08	.94	25.02N	33.57N	30.81N	13.01N	20.12N	17.36N
Sex	8.40F	.32	.53	3.19	.00	.05	1.65	4.48m	3.93m	4.58f	.83	.46

NOTE: Projects in numerical order are Hahn, Kendrick and Stauffer. Column A summarizes analysis of variance; Column B, covariance using Phonemes, Letter Names, Identical Forms, Meaning, and Listening as covariates; Column C, covariance using all eight premeasures as covariates. All F ratios in Column A based on 1 and 260 d.f.; Column B, 1 and 255 d.f.; Column C, 1 and 252 d.f. Significant difference favoring Language Experience indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance, lower case letter .05 level.

Table 6:34

Unadjusted and Adjusted Means on Individual Outcome Measures

for the Basal vs Language Experience Comparison

Project	Trt	Gilmore Accuracy A	B	C	Gilmore Rate A	B	C	Fry Word List A	B	C	Gates Word List A	B	C
HAHN	Basal	24.9	23.5	24.1	67.6	66.0	65.4	10.4	9.4	10.0	15.6	14.6	15.3
	LE	23.4	23.4	23.9	67.1	66.9	66.7	11.0	11.0	11.5	15.0	14.9	15.5
KENDRICK	Basal	14.6	12.7	11.9	35.3	33.3	34.2	4.9	3.0	2.3	10.6	9.3	8.5
	LE	17.4	15.6	15.1	34.0	30.9	31.5	4.8	3.1	2.5	10.4	8.8	8.1
STAUFFER	Basal	17.1	20.4	20.7	53.7	58.0	57.7	2.5	6.0	6.2	10.1	12.9	13.2
	LE	24.6	28.1	28.1	57.9	62.9	62.3	11.5	14.3	14.2	16.0	18.7	18.6

NOTE: Column A reports unadjusted means; Column B, means adjusted for Phonemes, Letter Names, Identical Forms, Meaning, and I.Q.; Column C, means adjusted for all eight premeasures.

Table 6:35

Materials and Numbers of Classes and Pupils for Basal vs Linguistic

	Ruddell		Schneyer		Sheldon	
	Classes	Pupils	Classes	Pupils	Classes	Pupils
Numbers						
Basal	6	120	12	334	7	143
Linguistic	5	97	12	347	14	316
Materials						
Basal	Allyn-Bacon		Scott-Foresman		Ginn	
Linguistic	McGraw-Hill		Fries		Singer Bloomfield-Barnhart	

The across-projects analysis of variance on the premeasures is reported in Table 6:36. This table is surprisingly devoid of significant effects. Only the main effect for projects is significant, thereby indicating that pupils in the various projects differed considerably in their readiness for reading. The across-projects analysis of variance and covariance on Stanford measures is reported in Table 6:37. Here again the project differences are most striking even when pupil readiness is adjusted by covariance. However, treatment differences were found to be significant on the Word Recognition and Paragraph Meaning subtests, the first difference favoring the Linguistic subjects and the second difference favoring the Basal subjects. Treatment by project interactions were found to be significant on three of the five Stanford Achievement measures in the covariance analysis using all seven premeasures as covariates. The explanation for these interactions can be found in Columns C of Table 6:41. On each of these Stanford subtests for which significant treatment by project interactions were found the difference favored one treatment in one project and another treatment in another project. The Linguistic and Basal treatments did not operate in the same fashion from project to project.

As a result of the project by treatment interactions a within-projects analysis was conducted. The analysis of variance on premeasures is reported in Table 6:38. Only two significant effects are found in the entire table. Table 6:39 reports the premeasure means for treatment groups within projects. The treatment groups are very similar in performance on the premeasures within each of the projects.

A within projects analysis of variance and covariance on Stanford measures is reported in Table 6:40. Again there are no significant sex by treatment interactions. Neither the Linguistic materials nor Basal materials utilized in these projects has a unique effect on boys and girls. Columns C record the result of a covariance analysis using all seven premeasures as covariates. Relatively few treatment differences were found. One difference favoring the Linguistic approach was found for the Word Reading, Spelling, and Word Study Skills subtests. This general lack of superiority of either approach is further supported by the unadjusted and adjusted means recorded in Table 6:41. The differences tend to favor one experimental group in one project and the other experimental group in another project.

Analysis of Individual Outcome Measures

The numbers of subjects who comprised the sample group in the three Basal versus Linguistic comparisons are reported in Table 6:42.

Table 6:36

Across Projects Analysis of Variance on Premeasures for Basal vs Linguistic Comparison

Effect	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
Sex	.56	.78	.13	1.47	1.13	.14	.16
Treatment	2.13	.99	3.24	.78	1.23	2.36	.76
Sex x Treatment	.00	.01	.08	.23	.09	.00	.00
Project	19.73**	3.99*	6.56**	2.26	16.66**	16.23**	17.70**
Sex x Project	.15	.50	.19	.11	.13	.26	.39
Trt x Project	.26	.10	.88	2.30	.99	.29	.21
Sex x Trt x Proj	.03	.17	.16	.12	.16	.12	.00

NOTE: Significant difference favoring Linguistic indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk indicates project difference or interaction significant at .05 level; two asterisks, .01 level. Numerator degrees of freedom equal one (1) except for all effects involving project in which case numerator d.f. equal 2. Denominator d.f. equal 100.

Table 6:37

Across Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Linguistic Comparison

	Word Recognition			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
Effect	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Sex	.09	.00	.56	.57	.55	1.70	.04	.49	.00	1.34	1.81	2.73	.94	1.17	2.96
Trt	.10	3.36	4.38n	4.09b	.96	6.12b	1.69	.00	.04	2.50	.11	.49	1.74	.01	.22
SxT	.01	.29	.34	.10	.71	.82	.07	.51	.74	.06	.00	.09	.05	.47	.46
Proj	3.18*	1.79	12.71**	1.60	4.94*	15.55**	8.89**	12.15**	2.11	3.27*	8.21**	9.22**	5.77**	10.15**	8.30*
SxP	.04	.34	.50	.06	.30	.39	.02	.09	.34	.06	.06	.73	.10	.09	.27
TxP	1.08	8.64**	11.32**	.50	3.14	.97	.23	2.75	1.85	1.25	7.42**	5.75**	.55	5.04**	4.72*
SxTxP	.08	.32	.82	.16	.28	1.06	.12	.31	.66	.01	.14	.12	.01	.16	.22

NOTE: Column A summarizes analysis of variance; Column B, covariance using Learning Rate as covariate; Column C, covariance using all seven premeasures as covariates. Significant difference favoring Linguistic indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk indicates project difference or interaction significant at .05 level; two asterisks, .01 level. Numerator degrees of freedom equal 1 for all effects except those involving project which are based on 2 d.f. Denominator d.f. are 100, 99, and 93 for Columns A, B, and C respectively.

Table 6:38

Within Projects Analysis of Variance on Premeasures for the Basal vs Linguistic Comparison

Project	Effect	Murphy-Durrell Phonemes	Murphy-Durrell Total Letters	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metrpolitan Listening	Pintner-Cunningha I.Q.
Ruddell	Sex x Treatment	.02	.05	.06	.35	.43	.22	.01
	Treatment	.48	.07	4.38b	1.15	2.56	2.72	1.21
	Sex	.03	.00	.05	.09	.30	.05	.31
Schneyer	Sex x Treatment	.02	.03	.38	.04	.00	.02	.01
	Treatment	2.14	1.17	.60	2.07	.12	1.26	.47
	Sex	.44	.01	.03	.30	.94	.00	.10
Sheldon	Sex x Treatment	.02	.28	.02	.00	.04	.00	.00
	Treatment	4.06b	1.00	1.05	1.81	3.56	2.39	1.81
	Sex	.40	1.76	.37	1.38	.09	.60	.52

NOTE: Significant difference favoring Linguistic indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance, lower case letter .05 level. All F ratios are based on 1 and 100 degrees of freedom.

Table 6:39

Premeasure Means for the Basal vs Linguistic Comparison

Project	Trt	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
RUDDELL	Basal	22.2	31.4	11.5	14.3	8.6	9.1	36.1
	Ling	19.3	30.2	9.5	17.0	7.1	8.0	32.2
SCHNEYER	Basal	19.7	30.2	9.1	12.1	7.5	8.1	30.1
	Ling	15.6	27.0	8.6	14.6	7.3	7.6	28.5
SHELDON	Basal	34.0	36.7	10.7	17.7	10.9	10.3	41.9
	Ling	27.6	33.2	10.0	15.1	9.5	9.4	38.2

Table 6:40

Within Projects Analysis of Variance and Covariance on Stanford Measures for the Basal vs Linguistic Comparison

		Word Recognition			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	Sex	.01	.24	.36	.00	.06	.61	.01	.17	.22	.49	.63	3.44	.05	.01	1.78
	Trt	.98	18.69N	25.37N	.40	2.26	.34	.12	3.05	2.54	.25	9.55N	8.42N	.01	6.61n	6.48n
	SxT	.11	.04	2.07	.34	.37	3.08	.00	.08	.38	.00	.08	.14	.03	.00	.82
2	Sex	.04	.35	.97	.23	.95	1.67	.08	.04	.01	.27	1.00	.70	.18	.78	1.28
	Trt	1.24	.67	.71	1.22	.62	1.04	1.96	1.49	1.14	3.26	3.41	2.61	2.63	2.53	2.92
	SxT	.01	.87	.10	.02	.91	.12	.01	.25	.03	.04	.16	.07	.01	.73	.02
3	Sex	.12	.05		.48	.12		.00	.38		.68	.30		.93	.59	
	Trt	.38	.12	.04	4.68b	4.54b	.08	2.47	1.43	.18	3.05	2.14	.24	2.09	1.03	.58
	SxT	.06	.06	.04	.03	.01	.00	.29	.88	1.88	.05	.03	.05	.00	.03	.20

NOTE: Projects in numerical order are Ruddell, Schneyer, and Sheldon. Column A summarizes analysis of variance; Column B, covariance using Learning Rate a covariate, Column C, covariance using all seven premeasures as covariates. All F ratios in Column A are based on 1 and 100 d.f.; Column B, 1 and 99 d.f.; Column C, 1 and 93 d.f. Significant differences favoring Linguistic are indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance, lower case letter, .05 level.

Table 6:41

Unadjusted and Adjusted Stanford Means for the Basal vs Linguistic Comparison

Project	Trt	Word Reading			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
RUDDELL	Basal	18.0	14.2	17.3	17.7	13.0	16.9	19.5	16.5	18.8	8.4	5.4	7.4	32.8	27.8	31.6
	Ling	20.6	21.1	22.6	15.6	16.3	17.8	18.7	19.1	20.8	9.5	9.9	11.1	33.1	33.8	35.8
SCHNEYER	Basal	18.2	19.5	20.2	17.6	19.2	20.3	20.1	21.1	21.7	10.7	11.7	12.3	35.2	37.0	37.9
	Ling	16.3	18.6	19.7	15.1	18.1	19.3	18.0	19.9	20.8	8.0	9.9	11.0	31.3	34.5	36.1
SHELDON	Basal	21.2	19.0	15.7	22.3	19.6	15.5	24.8	23.1	20.3	13.3	11.6	9.1	41.0	38.0	33.8
	Ling	20.0	19.4	17.6	16.8	16.1	13.8	22.1	21.7	20.2	10.4	10.0	8.5	37.0	36.2	33.6

NOTE Column A reports unadjusted means; Column B, means adjusted for premeasure differences on Learning Rate; Column C, adjusted for all seven covariates.

Table 6:42

Subjects Used for the Analysis of Individual Outcome Measures for the Basal vs Linguistic Comparison

Project	Trt.	Males	Females	Total
RUDDELL	Basal	21	20	41
	Ling	20	14	34
SCHNEYER	Basal	21	23	44
	Ling	16	28	44
SHELDON	Basal	15	20	35
	Ling	29	39	68

The analysis of variance on premeasures for this sample group is reported in Table 6:43. A number of treatment differences are reported pointing out the difficulty of obtaining experimental groups equal in prereading capability. Surprisingly, two of the three significant sex differences on premeasures favored boys.

The within-projects analysis of variance and covariance on individual outcome measures is recorded in Table 6:44. Columns C of the table summarize an analysis of covariance which utilized all eight premeasures as covariates. In this analysis no treatment differences were found in reading accuracy. Two of the three projects found significant differences favoring the Basal group in rate of reading. Conversely, two significant differences favoring the Linguistic group were found in performance on the Fry Phonetically Regular Word Test. This finding is somewhat to be expected because the Fry list was devised to approximate the vocabulary introduced in Linguistic programs. However, it was thought the Gates list would favor pupils who had been taught to read using a Basal series. However, in this analysis no treatment differences were found on the Gates test. The unadjusted and adjusted means for the Linguistic and Basal groups in the three projects are listed in Table 6:45. The means indicate that the Basal method produced higher mean performance in terms of reading accuracy in all three projects although these differences were not significant. Likewise, the Basal program produced higher rate of reading in all three projects, two cases of which proved to be statistically significant. The Linguistic group outperformed the Basal group on the Fry test in all three projects. The Linguistic group also surpassed the Basal group on the Gates test in two of the three projects.

Summary of Basal versus Linguistic Comparison

The most common finding for the Linguistic versus Basal comparison was that of no difference between treatments. However, the Linguistic group tended to outperform the Basal group on tests of word recognition while the Basal group exhibited somewhat greater speed and accuracy in reading. No differences in comprehension were ascertained.

Basal versus Phonic/Linguistic Comparisons

Three projects were involved in the Basal versus Phonic/Linguistic comparison. Information about the numbers of classes and students and the kinds of Basal series utilized is recorded in Table 6:46. Two of the three projects used the same Basal series but the third project used a variety of Basal materials. The Phonic/Linguistic series was treated as a separate approach because it didn't seem to fit any of the other categories used in this investigation.

Table 6:43

Within Projects Analysis of Variance on Premeasures for Basal vs Linguistic Comparison

Project	Eff	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Pattern Copying	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
Ruddell	Sex	.03	.26	.80	.87	4.65m	6.85M	.66	.47
	Trt	.61	.74	3.76	.56	.00	2.62	12.94B	6.65b
	SxT	.96	.01	.34	.08	.37	.38	1.53	.76
Schneyer	Sex	3.42	8.94F	.19	1.55	.20	.03	.00	1.88
	Trt	1.88	.66	2.12	3.95b	6.20n	.32	1.41	.35
	SxT	.12	.12	2.12	.45	.87	.18	.02	2.06
Sheldon	Sex	.96	.07	.11	.09	1.91	.03	1.23	2.18
	Trt	5.13b	4.27b	.40	.13	3.11	4.61b	1.78	4.72b
	SxT	1.59	.20	.09	.76	1.02	1.69	1.42	1.83

NOTE: Significant difference favoring Linguistic indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. All F ratios based on 1 and 254 degrees of freedom.

Table 6:44

Within Projects Analysis of Variance and Covariance on Individual Outcome Measures for Basal vs Linguistic Comparison

	Gilmore Accuracy			Gilmore Rate			Fry Word List			Gates Word List		
Effect	A	B	C	A	B	C	A	B	C	A	B	C
1 Sex	.02	.94	1.04	.12	1.92	1.46	.45	.02	.01	.98	.01	.11
Treatment	1.98	.02	.06	2.74	.20	.56	.99	8.90N	6.26n	.36	1.32	.31
Sex x Treatment	.07	.02	.07	.01	.00	.03	.01	.07	.60	.41	1.11	2.94
2 Sex	8.46F	9.49F	5.86f	7.59F	7.53F	3.55	5.43f	5.10f	1.94	5.33f	5.26f	1.72
Treatment	3.46	1.34	2.32	5.34b	3.17	4.47b	.46	.41	.25	2.35	.41	.85
Sex x Treatment	.04	.33	.36	.77	1.83	2.62	.04	.22	.11	.25	.83	.94
3 Sex	1.03	.34	.41	1.11	.45	.48	.00	.36	.36	.05	.20	.27
Treatment	7.14B	6.08b	2.03	9.68B	8.57B	4.67b	3.62	10.05N	24.17N	.37	.03	2.85
Sex x Treatment	.00	.79	1.65	.16	.06	.14	.01	.81	1.81	.05	1.61	3.18

NOTE: Projects in numerical order are Ruddell, Schneyer, and Sheldon. Column A summarizes analysis of variance; Column B, covariance using Learning Rate, Pattern Copying, Identical Forms, and Listening as covariates; Column C, covariance using all eight premeasures as covariates. All F ratios in Column A based on 1 and 254 d.f.; Column B, 1 and 250 d.f.; Column C, 1 and 246 d.f. Significant difference favoring Linguistic indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level.

Table 6:45

Unadjusted and Adjusted Means on Individual Outcome Measures

for the Basal vs Linguistic Comparison

Project	Trt	Gilmore Accuracy			Gilmore Rate			Fry Word List			Gates Word List		
		A	B	C	A	B	C	A	B	C	A	B	C
RUDDELL	Basal	19.1	15.5	17.8	54.0	46.3	50.7	6.2	3.9	5.6	11.5	9.1	10.9
	Ling	15.0	15.8	17.3	42.4	43.6	46.3	8.0	8.1	8.9	10.4	10.7	11.6
SCHNEYER	Basal	24.2	25.0	27.0	60.5	62.4	66.1	6.8	6.9	8.1	11.6	12.0	13.3
	Ling	19.1	22.5	24.0	45.7	52.6	55.1	5.7	7.7	8.7	8.9	11.1	12.2
SHELDON	Basal	26.7	24.8	20.3	62.9	59.1	50.8	6.6	5.9	3.0	13.1	12.0	8.8
	Ling	19.6	19.7	17.5	43.4	43.7	40.0	9.6	9.9	8.5	12.1	12.3	10.7

NOTE: Column A reports unadjusted means; Column B, means adjusted for Learning Rate, Pattern Copying, Identical Forms, and Listening; Column C, means adjusted for all eight premeasures.

Table 6:46

Materials and Numbers of Classes and Pupils for Basal vs Phonic/Linguistic

	Hayes		Tanyzer		Wyatt	
	Classes	Pupils	Classes	Pupils	Classes	Pupils
Numbers						
Basal	5	87	9	228	10	210
Phonic/Linguistic	5	99	8	186	10	203
Materials						
Basal	Scott-Foresman		Scott-Foresman		Variety	

The across-projects analysis of variance on premeasures is reported in Table 6:47. Significant sex differences favoring girls were found on five of the seven premeasures. Significant treatment effects favoring the Phonic/Linguistic subjects were found on two of the seven premeasures. Highly reliable project differences were reported. Also treatment by project interactions were found to be significant on three of the seven premeasures.

The analysis of variance and covariance on Stanford measures across projects is reported in Table 6:48. Although the analysis of variance summarized in Columns A found significant sex differences favoring females on four of the five outcome measures, these differences were erased when the achievement scores were adjusted for differences in prereading capability. In other words, the superiority of girls in reading capability at the end of the year appeared to be merely a reflection of their superiority in readiness for reading at the beginning of the year. Project differences were found to be highly reliable indicating that pupils differed considerably from project to project in their reading ability. Again, sex by treatment interactions were found to be negligible. Treatment differences were found to favor the Phonic/Linguistic approach on four of the five Stanford measures. Moreover, with respect to the covariance analysis, only one treatment by project interaction was found to be significant. Apparently the Phonic/Linguistic and Basal treatments operated in a similar fashion from project to project. Furthermore, the Phonic/Linguistic treatment tended to produce higher reading achievement at the end of the first grade.

Despite the relative freedom from project by treatment interactions a within-projects analysis was conducted. This analysis was performed in the interests of consistency with the other Basal versus non-Basal treatment comparisons. The within-projects analysis of variance on premeasures is reported in Table 6:49. Two of the three projects are free from significant treatment effects. However, the other project found significant treatment differences favoring the Phonic/Linguistic group on six of the seven premeasures. Obviously, in the project the Phonic/Linguistic group was in a very favored position in terms of readiness for reading. Further information concerning this fact is presented in Table 6:50 which presents the premeasure means for treatments within projects. In the project in question large differences were found in mean performance between treatments on most of the premeasures. This lack of homogeneity between treatment groups must be considered in interpreting the achievement results.

The within-projects analysis of variance and covariance on the Stanford measures is reported in Table 6:51. The general superiority

Table 6:47

Across Projects Analysis of Variance on Premeasures for Basal vs Phonic/Linguistic Comparison

Effect	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
Sex	7.28F	8.34F	5.10f	5.40f	3.06	3.62	8.69F
Treatment	15.04N	.57	11.28N	2.31	2.27	1.24	3.39
Sex x Treatment	.07	.08	1.32	.23	.13	.54	.24
Project	51.31**	51.53**	42.41**	10.90**	34.45**	34.15**	31.23**
Sex x Project	.13	.95	1.73	.11	.66	.46	.93
Trt x Project	8.45**	3.03	.39	6.85**	3.82*	2.38	2.28
Sex x Trt x Proj	.55	.38	.11	.27	.72	.85	.33

NOTE: Significant difference favoring Phonic/Linguistic indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk indicates project difference or interaction significant at .05 level; two asterisks, .01 level. Numerator degrees of freedom equal one (1) except for all effects involving project in which case numerator d.f. equals 2. Denominator d.f. equals 82.

Table 6:48

Across Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Phonic/Linguistic Comparison

Effect	Word Recognition A	B	C	Paragraph Meaning A	B	C	Vocabulary A	B	C	Spelling A	B	C	Word Study Skills A	B	C
Sex	7.60F	.95	.39	13.60F	4.46f	1.41	.05	7.19M	6.35m	8.00F	1.27	.01	4.90f	.00	.19
Trt	77.20N	54.17N	79.89N	18.18N	4.24n	8.95N	5.72n	.07	1.45	20.16N	5.39n	10.59N	19.33N	3.81	7.01
SxT	.03	.00	.17	.45	.00	.29	.14	.04	.29	.01	.03	.02	.05	.49	.20
Project	6.71**	14.70**	24.15**	6.21**	18.87**	32.58**	4.26*	11.97**	23.07**	6.13**	6.59**	12.59**	5.56**	17.00**	20.72*
SxP	.44	.49	.36	.24	.25	.60	.64	.99	1.10	.64	.70	.18	.30	.15	.13
TxP	3.99*	1.57	3.32*	2.64	1.12	1.51	3.40*	.15	.36	1.32	2.28	1.16	3.09	2.05	1.69
SxTxP	.31	.02	.32	.04	.11	.30	.36	.40	.08	.65	.28	.36	.22	.01	.08

NOTE: Column A summarizes analysis of variance; Column B, covariance using Phonemes and Identical Forms as covariates; Column C, covariance using all seven premeasures as covariates. Significant difference favoring phonic/linguistic indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. One asterisk indicates project difference or interaction significant at .05 level; two asterisks, .01 level. Numerator degrees of freedom equal 1 for all effects except those involving project which are based on 2 d.f. Denominator d.f. are 82, 80, and 75 for Columns A, B, and C respectively.

Table 6:49

Within Projects Analysis of Variance on Premeasures for the Basal vs Phonic/Linguistic Comparison

Project	Effect	Murphy-Durrell Phonemes	Murphy-Durrell Total Letters	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningha I.Q.
	Sex x Treatment	.65	.21	.43	.03	.01	.59	.00
Hayes	Treatment	.02	1.14	1.58	2.62	2.00	.24	.28
	Sex	1.41	3.81	3.23	1.46	.22	1.12	3.39
	Sex x Treatment	.20	.62	.11	.71	.26	1.26	.85
Tanyzer	Treatment	32.10N	5.70n	8.00N	13.36N	7.25N	.10	7.21N
	Sex	4.08f	5.76f	5.26f	2.83	.14	3.17	6.41f
	Sex x Treatment	.31	.00	1.08	.03	1.31	.37	.03
Wyatt	Treatment	.62	.01	3.77	.01	.89	5.75n	.60
	Sex	2.06	.70	.01	1.34	4.01f	.28	.78

NOTE: Significant difference favoring Phon/Ling indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance, lower case letter .05 level. All F ratios based on 1 and 82 degrees of freedom.

Table 6:50

Premeasure Means for the Basal vs Phonic/Linguistic Comparison

Project	Trt	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
HAYES	Basal	14.7	24.0	7.0	13.1	7.2	7.8	33.3
	Lipp	15.0	21.1	7.9	10.6	6.4	7.6	32.4
TANYZER	Basal	24.0	36.7	10.9	12.4	8.8	9.7	37.6
	Lipp	35.4	41.8	12.5	16.8	10.0	9.6	41.2
WYATT	Basal	29.3	37.6	9.8	16.1	9.4	9.7	40.6
	Lipp	30.8	37.5	10.8	16.2	9.8	10.5	41.6

Table 6:51

Within Projects Analysis of Variance and Covariance on Stanford Measures for the Basal vs Phonic/Linguistic Comparison

		Word Recognition			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
1	Sex	3.58	1.66	.32	4.78f	2.70	.37	.69	.01	.50	4.15f	2.17	.06	1.29	.04	.32
	Trt	15.27N	26.44N	32.27N	2.98	5.38n	5.27n	.06	.03	.07	5.17n	8.74N	8.34N	3.21	7.50N	7.54N
	SxT	.38	.03	.11	.02	.14	.18	.06	.10	.00	.76	.27	.43	.49	.05	.13
2	Sex	3.60	.30	.02	5.57f	1.32	.03	.03	4.21f	7.52F	4.04f	.56	.22	3.42	.08	.17
	Trt	54.16N	13.03N	31.17N	18.21N	.22	4.16n	11.92N	.32	1.38	14.38N	.00	2.03	20.41N	.00	1.58
	SxT	.18	.00	.00	.02	.08	.07	.80	.45	.39	.53	.21	.27	.02	.17	.23
3	Sex	1.30	.02	.79	3.73	1.32	2.56	.61	5.41f	2.40	1.09	.00	.01	.78	.16	.00
	Trt	14.67N	18.59N	17.49N	1.58	.97	.39	.37	.02	.03	3.05	2.54	2.24	1.58	1.00	.55
	SxT	.09	.00	.71	.09	.00	.64	.01	.28	.10	.00	.11	.05	.00	.30	.00

NOTE: Projects in numerical order are Hayes, Tanyzer, and Wyatt. Column A summarizes analysis of variance; Column B covariance using Phonemes and Identical Forms as covariates; Column C, covariance using all seven premeasures as covariates. All F ratios in Column A based on 1 and 82 d.f.; Column B, 1 and 82 d.f.; and Column C, 1 and 75 d.f. Significant difference favoring Phon/Ling indicated by N or n, Basal by B or b, Females by F or f, Males by M or m. Capital letter in each case signifies .01 level of significance, lower case letter, .05 level.

of the Phonic/Linguistic program is also indicated here, although the results are not as striking as in the across-projects analysis. In the within-projects analysis all significant treatment differences favored the Phonic/Linguistic program. In the second covariance analysis, all three projects reported significant differences in favor of the Phonic/Linguistic program on the Word Reading test. Two of the three projects found significant differences favoring the Phonic/Linguistic program on the Paragraph Meaning test. One of the three projects found significant differences favoring the Phonic/Linguistic program on both the Spelling and Word Study Skills tests. No significant differences were found between treatments on the Vocabulary test. A further indication of this same trend can be found in Table 6:52 which reports the unadjusted and adjusted means for the various projects. Each of the mean comparisons in Columns C for each outcome variable within each project favored the Phonic/Linguistic program. In other words, even those differences which were not found to be statistically significant pointed out the same general trend.

Analysis of Individual Outcome Measures

The number of subjects who were given the individual tests in the Basal versus Phonic/Linguistic projects are recorded in Table 6:53. The result of the within-projects analysis of variance on the premeasure scores of these individuals is reported in Table 6:54. Nothing very unusual is found there except that the treatment differences favoring the Phonic/Linguistic program on premeasures in one project are again pointed out.

The within-projects analysis of variance and covariance on the individual outcome measures is reported in Table 6:55. Columns C report an analysis of covariance using all eight premeasures as covariates. In this analysis no differences between treatments were found in reading rate while one difference favoring the Phonic/Linguistic program was found in reading accuracy. However, striking differences in favor of the Phonic/Linguistic program were found in each project for each of the word recognition tests. The corresponding unadjusted and adjusted means are reported in Table 6:56 and tend to lend further support to the superiority of the Phonic/Linguistic program to the Basal approach on the measures utilized in this investigation. Substantial differences between treatments were found on both the Gates and Fry word lists. Furthermore, each mean difference on the Gilmore Accuracy score favors the Phonic/Linguistic program as do two of the three reading rate scores.

Summary of Basal versus Phonic/Linguistic Comparison

The data presented here tend to point out the superiority of the Phonic/Linguistic program to the Basal readers utilized in these

Table 6:52

Unadjusted and Adjusted Stanford Means for the Basal vs Phonic/Linguistic Comparison

		Word Reading			Paragraph Meaning			Vocabulary			Spelling			Word Study Skills		
Project	Trt	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Hayes	Basal	18.5	23.6	24.7	19.3	26.1	28.0	22.0	26.6	27.3	9.0	13.4	14.3	34.2	42.7	48.9
	P/L	25.2	30.4	31.4	23.5	30.6	32.0	21.6	26.4	27.6	12.5	17.0	17.6	38.8	47.7	48.6
Tanyzer	Basal	17.5	18.9	17.2	16.1	18.0	15.1	20.5	21.7	20.3	10.2	11.4	9.8	33.9	36.2	34.3
	P/L	27.2	23.3	23.4	24.1	18.8	18.5	24.7	21.1	21.4	14.7	11.4	11.3	42.8	36.2	36.4
Wyatt	Basal	22.7	21.4	21.8	23.3	21.5	22.4	24.0	22.8	22.8	13.1	11.9	12.4	40.3	38.0	38.4
	P/L	27.4	25.4	25.4	25.5	22.9	23.2	24.7	22.9	22.9	15.0	13.3	13.6	42.5	39.3	39.3

NOTE: Column A reports unadjusted means; Column B, means adjusted for premeasure differences on Phonemes and Identical Forms; Column C, adjusted for all seven covariates.

Table 6:53

Subjects Used for the Analysis of Individual Outcome Measures for the Basal vs Phonic/Linguistic Comparison

Project	Trt.	Males	Females	Total
HAYES	Basal	15	15	30
	P/L	16	14	30
TANYZER	Basal	9	8	17
	P/L	8	6	14
WYATT	Basal	25	25	50
	P/L	25	25	50

Table 6:54

Within Projects Analysis of Variance on Premeasures for Basal vs Phonic/Linguistic Comparison

Project	Eff	Murphy-Durrell Phonemes	Murphy-Durrell Letter Names	Murphy-Durrell Learning Rate	Thurstone Pattern Copying	Thurstone Identical Forms	Metropolitan Meaning	Metropolitan Listening	Pintner-Cunningham I.Q.
Hayes	Sex	4.44f	8.93F	4.02f	3.11	5.08f	.29	3.67	6.05f
	Trt	.54	4.08b	.10	14.50B	8.90B	.25	1.23	1.24
	SxT	2.08	1.26	2.11	.38	.53	.03	.35	.04
Tanyzer	Sex	5.35f	2.20	.23	2.51	.90	.80	.44	6.80F
	Trt	10.27N	3.45	7.30N	.44	4.96n	3.26	2.34	5.63n
	SxT	1.92	.24	.02	.39	.12	.48	.01	.12
Wyatt	Sex	.80	.92	.03	1.53	2.51	3.97m	.07	.88
	Trt	.11	.68	1.06	2.25	.26	.26	1.89	.01
	SxT	4.14*	.25	.48	.00	.01	.04	.36	.10

NOTE: Significant difference favoring Phonic/Linguistic indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case signifies .01 level of significance; lower case letter, .05 level. All F ratios based on 1 and 179 degrees of freedom. One asterisk indicates interaction significant at .05 level; two asterisks, .01 level.

Table 6:55

Within Projects Analysis of Variance and Covariance on Individual Outcome Measures

for Basal vs Phonic/Linguistic Comparison

	Gilmore Accuracy			Gilmore Rate			Fry Word List			Gates Word List		
Effect	A	B	C	A	B	C	A	B	C	A	B	C
1 Sex	5.48f	.49	.75	21.75F	12.63F	13.31F	6.66f	1.13	1.24	6.24f	1.25	1.37
Treatment	1.48	7.32N	5.35n	.30	.06	.01	39.32N	66.93N	61.89N	18.12N	31.53N	28.35N
Sex x Treatment	4.31	2.07	1.93	2.60	1.56	1.34	3.64	2.21	1.87	3.65	1.87	1.61
2 Sex	3.53	.43	.55	2.09	.50	.70	.68	.17	.06	1.43	.01	.04
Treatment	3.25	.22	.01	8.44N	3.81	3.11	30.93N	22.08N	19.74N	12.46N	6.54n	5.33n
Sex x Treatment	.49	.01	.19	1.14	.62	.90	.15	.03	.00	.03	.16	.04
3 Sex	2.46	1.07	2.81	1.66	.69	1.45	1.33	.19	.62	2.03	.78	1.58
Treatment	1.89	6.08n	2.94	.20	.01	.18	27.12N	44.44N	37.13N	9.12N	16.22N	12.04N
Sex x Treatment	1.14	4.27	2.66	.12	.00	.03	.25	.00	.07	.01	.46	.15

NOTE: Projects in numerical order are Hayes, Tanyzer, and Wyatt. Column A summarizes analysis of variance;; Column B, covariance using Phonemes, Letter Names, Pattern Copying, and Identical Forms as covariates; Column C, covariance using all eight premeasures as covariates. All F ratios in Column A based on 1 and 179 d.f.; Column B, 1 and 175 d.f.; and Column C, 1 and 171 d.f. Significant difference favoring Phonic/Linguistic indicated by N or n, Basal by B or b, females by F or f, males by M or m. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level.

Table 6:56

Unadjusted and Adjusted Means on Individual Outcome Measures

for the Basal vs Phonic/Linguistic Comparison

Project	Trt	Gilmore Accuracy A	Gilmore Accuracy B	Gilmore Accuracy C	Gilmore Rate A	Gilmore Rate B	Gilmore Rate C	Fry Word List A	Fry Word List B	Fry Word List C	Gates Word List A	Gates Word List B	Gates Word List C
HAYES	Basal	19.2	23.7	24.7	65.2	71.3	72.1	3.8	5.8	6.1	11.4	13.7	14.0
	Lipp	23.1	31.3	31.2	62.0	72.7	72.7	16.8	21.6	21.5	20.5	25.1	25.0
TANYZER	Basal	23.4	20.5	21.0	45.9	43.6	42.7	3.8	2.7	2.5	9.9	8.4	8.4
	Lipp	31.5	22.2	21.3	69.8	59.1	56.9	19.9	14.8	14.1	20.4	15.4	14.7
WYATT	Basal	30.5	27.6	28.2	57.5	53.5	54.5	10.3	8.7	9.1	15.5	13.9	14.3
	Lipp	33.9	32.7	31.7	55.4	53.1	52.6	18.6	18.0	17.8	20.5	19.9	19.5

NOTE: Column A reports unadjusted means; Column B, means adjusted for Phonemes, Letter Names, Pattern Copying, and Identical Forms; Column C, means adjusted for all eight premeasures.

projects. The Phonic/Linguistic program produced pupils with superior Word Reading, Paragraph Meaning, Spelling and Word Study Skills. Phonic/Linguistic pupils were also superior on the Fry Test of Phonetically Regular Words and the Gates Word Recognition Test. No significant differences were found between the Phonic/Linguistic and Basal subjects in rate or accuracy of reading.

The Practicality of Significant Differences

Many significant differences have been reported above for the various basal versus non-basal comparisons. Differences were regarded as being significant if they reached the .05 level of significance. However, with the large number of comparisons involved one would expect a substantial number of differences to reach statistical significance on the basis of chance alone. Furthermore, a large sample was employed in this investigation. As a result, a relatively small difference between treatments might be statistically significant. It would be of interest to know how important the statistically reliable differences reported are in a practical sense. In the discussion of the results, unadjusted and adjusted means were given for each treatment comparison. These means were based on raw scores for the various achievement tests. Therefore, it is possible to note the degree of disparity between means for the various basal versus non-basal comparisons. However, since the achievement measures were standardized tests, normative information is also available. Each of the raw scores can be translated into a grade equivalent score. It is therefore possible to judge the practical significance of the differences in terms of whether or not the mean achievement for each group would result in similar grade equivalents. Perhaps, two groups could obtain a grade equivalent score of 1.9, even though a statistically significant difference had been obtained in comparing the achievement means.

Relevant information concerning the grade equivalents for various raw scores on each of the Stanford Tests is reported in Table 6:57. This table reveals, for example, that scores of 18, 19, and 20 on the Stanford Word Reading test result in the same grade equivalent, 1.7. Therefore, two groups would achieve the same grade equivalent even though one of them averaged 18 correct answers on the Word Reading test while the other group averaged 20 correct answers. A raw score difference of this magnitude in this study in many instances would be regarded as statistically significant. The reader is encouraged to check the raw scores obtained on the various tests for each basal versus non-basal comparison against this table of norms to obtain some idea of the practical significance of the statistically reliable treatment differences reported.

Table 6:57

Grade Equivalents for Stanford Achievement Test Primary I Battery, Form W

Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
No. Right	Grade Score	No. Right	Grade Score	No. Right	Grade Score	No. Right	Grade Score	No. Right	Grade Score
1	Below 1.0	1	1.0	1	Below 1.0	1	1.0	1	Below 1.0
2		2	1.1	2		2	1.1	2	
3		3	1.1	3		3	1.3	3	
4		4	1.2	4	1.0	4	1.4	4	
5	1.0	5	1.2	5	1.0	5	1.5	5	
6	1.0	6	1.3	6	1.0	6	1.6	6	
7	1.1	7	1.4	7	1.1	7	1.6	7	
8	1.1	8	1.4	8	1.1	8	1.7	8	
9	1.2	9	1.5	9	1.1	9	1.7	9	
10	1.3	10	1.5	10	1.2	10	1.8	10	
11	1.3	11	1.5	11	1.2	11	1.9	11	1.0
12	1.4	12	1.6	12	1.2	12	2.0	12	1.0
13	1.4	13	1.6	13	1.3	13	2.1	13	1.0
14	1.5	14	1.6	14	1.3	14	2.2	14	1.1
15	1.5	15	1.6	15	1.4	15	2.3	15	1.1
16	1.6	16	1.6	16	1.4	16	2.4	16	1.1
17	1.6	17	1.7	17	1.5	17	2.6	17	1.2
18	1.7	18	1.7	18	1.5	18	2.8	18	1.2
19	1.7	19	1.7	19	1.6	19	3.0	19	1.2
20	1.7	20	1.7	20	1.7	20	3.4	20	1.2
21	1.8	21	1.8	21	1.8			21	1.3
22	1.8	22	1.8	22	1.9			22	1.3
23	1.9	23	1.8	23	2.1			23	1.3
24	1.9	24	1.9	24	2.2			24	1.3
25	2.0	25	1.9	25	2.3			25	1.4
26	2.1	26	2.0	26	2.4			26	1.4
27	2.2	27	2.0	27	2.5			27	1.4
28	2.3	28	2.1	28	2.7			28	1.5
29	2.4	29	2.2	29	2.9			29	1.5
30	2.5	30	2.3	30	3.1			30	1.5
31	2.6	31	2.4	31	3.3			31	1.6
32	2.7	32	2.5	32	3.6			32	1.6
33	2.9	33	2.6	33	4.0			33	1.7
34	3.2	34	2.7	34	4.4			34	1.8
35	3.6	35	2.9	35	4.8			35	1.8

Table 6:57 (Continued)

Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
No. Right	Grade Score	No. Right	Grade Score	No. Right	Grade Score	No. Right	Grade Score	No. Right	Grade Score
		36	3.1	36	5.2			36	1.9
		37	3.6	37	5.5+			37	1.9
		38	4.0	38				38	2.0
				39				39	2.0
								40	2.1
								41	2.2
								42	2.3
								43	2.4
								44	2.5
								45	2.6
								46	2.7
								47	2.8
								48	3.0
								49	3.2
								50	3.4
								51	3.9
								52	4.8
								53	5.5+
								54	
								55	
								56	

A word should also be said about the average grade equivalents found for the various treatments. The experimental period was 140 days or approximately seven months. Therefore, a grade score of 1.7 would be a reasonable expectation of achievement. Furthermore, there is some indication that the norms on the Stanford test are somewhat depressed. That is, the same level of achievement on many other primary reading tests would result in a higher grade equivalent.

Variability Within Treatments

The discussion to this point has centered around the mean achievement of pupils in various reading programs. Another important question involves the extent to which any program reduces or increases pupil variability. Two kinds of information from this study are relevant. In the first place, the within-projects analysis made possible the location of the highest and lowest mean class achievement within each treatment. Assuming that classes were randomly assigned to treatments, it might be expected that a superior treatment would tend to be superior across all classrooms. Perhaps, as a result, the classes involved in the superior treatment would cluster near the top achievement level and would exhibit limited interclass variability.

For each basal versus non-basal comparison the lowest class mean and highest class mean on each subtest are reported for each treatment within each project. These class means, based on combined data from the two sexes are recorded in Table 6:58. There is little to indicate that interclass variability is different for I.T.A. and Basal classrooms. In three of the five projects the I.T.A. classes exhibited a greater range between the lowest class mean and the highest class mean on the word recognition variable. However, in the other projects greater variability was exhibited by the Basal classrooms. A somewhat similar situation existed with respect to the Paragraph Meaning subtest. The Fry and Hahn projects found greater variability among I.T.A. classrooms, chiefly because of very low achievement on the part of one classroom in the I.T.A. treatment. In each of these projects the lowest mean achievement was produced by an I.T.A. class. The Hayes project found practically identical interclass variability although in this project both the lowest and highest I.T.A. class means were considerably above their Basal counterparts. In the last two projects slightly higher variability was exhibited by the Basal classrooms. A similar lack of consistency is found for the Spelling and Word Study Skills subtests. In certain projects greater interclass variability was found for the Basal treatment while in other projects greater interclass variability was obtained for the I.T.A. classes. Overall, there is no evidence that either the Basal or I.T.A. treatment tends to increase or decrease interclass variability. Of course, the information in Table 6:58 says nothing about intraclass variability.

Table 6:58

Ranges of Class Means of Four Stanford Subtests by Treatment and Project

Basal vs I.T.A.

Project	Trt	Word Reading			Paragraph Meaning			Spelling			Word Study Skills		
		Min	Max	Range	Min	Max	Range	Min	Max	Range	Min	Max	Range
Fry	Basal	16	22	6	17	23	6	8	13	5	28	37	9
	ITA	14	23	9	10	22	12	4	10	6	30	40	10
Hahn	Basal	18	27	9	17	29	12	8	15	7	29	45	16
	ITA	18	32	14	11	32	21	5	17	12	33	47	14
Hayes	Basal	12	22	10	9	26	17	2	13	11	25	43	18
	ITA	19	32	13	16	34	18	11	19	8	35	49	14
Mazurk.	Basal	12	27	15	9	30	21	5	17	12	25	45	20
	ITA	14	27	13	10	28	18	3	13	10	26	43	17
Tanyzer	Basal	13	21	8	12	20	8	6	13	7	28	37	9
	ITA	22	28	6	20	27	7	10	14	4	39	49	10

Basal vs Basal plus Phonics

Bordeaux	Basal	16	23	7	14	28	14	5	16	11	27	40	13
	B+P	16	23	7	14	24	10	4	14	10	27	35	8
Hayes	Basal	12	22	10	9	26	17	2	13	11	25	43	18
	B+P	15	28	13	14	29	15	5	17	12	30	43	13
Manning	Basal	11	20	9	8	20	12	1	7	6	19	33	14
	B+P	18	24	6	13	23	10	6	12	6	29	37	8
Murphy	Basal	13	28	15	10	26	16	2	16	14	27	43	16
	B+P	16	31	15	12	29	17	4	17	13	27	49	22

Table 6:58 (Continued)

Basal vs Language Experience

Project	Trt	Word Reading			Paragraph Meaning			Spelling			Word Study Skills		
		Min	Max	Range	Min	Max	Range	Min	Max	Range	Min	Max	Range
Cleland	Basal	19	27	8	19	31	12	10	19	9	35	44	9
	LE	14	30	16	19	32	13	6	19	13	31	48	17
Hahn	Basal	18	27	9	17	29	12	8	15	7	29	45	16
	LE	19	28	9	16	31	15	10	18	8	32	45	13
Kendrick	Basal	12	25	13	11	28	17	3	17	14	19	45	26
	LE	15	24	9	8	25	16	4	15	11	25	42	17
Stauffer	Basal	12	19	7	10	20	10	5	13	8	26	41	15
	LE	8	30	22	5	31	26	0	18	18	20	51	31

Basal vs Linguistic

Ruddell	Basal	12	22	10	8	24	16	4	12	8	26	37	11
	Ling	14	24	10	11	22	11	3	13	10	25	39	14
Schneyer	Basal	8	29	21	4	32	28	1	18	17	18	49	31
	Ling	6	27	21	5	30	25	0	16	16	17	46	29
Sheldon	Basal	17	25	8	16	27	11	6	17	11	33	46	13
	Ling	12	29	17	8	29	21	3	17	14	28	51	23

Basal vs Phonic/Linguistic

Hayes	Basal	12	22	10	9	26	17	2	13	11	25	43	18
	P/L	17	33	16	12	34	22	6	17	11	29	47	18
Tanyzer	Basal	13	21	8	12	20	8	6	13	7	28	37	9
	P/L	24	31	7	19	38	9	12	16	4	37	48	11
Wyatt	Basal	17	26	9	12	30	18	7	18	11	28	50	22
	P/L	22	32	10	18	31	13	11	18	7	36	50	14

The Basal versus Basal plus Phonics comparison leads to a similar conclusion. There is no clear-cut evidence that interclass variability is greater or smaller in either of the two treatments. The same could be said of the Basal versus Linguistic and Basal versus Phonic/Linguistic comparisons.

The Basal versus Language Experience comparison presents a somewhat different picture. Although not all of the differences go in the same direction, there is an indication that the range between the highest and lowest average class achievement is greater in the Language Experience approach than the Basal program. Note, for example, the tremendous interclass variability for the Language Experience approach in the first and fourth projects listed on the table. In these two projects the range for each subtest was greater in the Language Experience approach and usually the difference between the ranges for the Language Experience and the Basal approach is quite striking. Furthermore, in these two projects, for each subtest the lowest class mean was found in the Language Experience treatment as was the highest class mean. Perhaps this indicates that certain teachers find it difficult to put into practice an instructional program which does not use a structured set of materials which systematically introduces to the child the basic reading skills. On the other hand, this finding might also indicate that certain other teachers find that they can proceed much more efficiently without the "lock-step" inherent to some extent at least in the teacher's use of most basal reader programs.

One obvious finding of this part of the analysis is that large differences exist in the mean achievement of various classrooms even within a treatment and within a project. It is often said that greater differences exist among classrooms within a treatment than between treatments. There is much to support that statement here.

The second approach to assessing variability within treatments was to examine the standard deviations obtained for each treatment on each achievement measure. A relatively large standard deviation for any treatment might indicate that that treatment encouraged superior pupils to achieve up to their capabilities or that the treatment was relatively ineffective for pupils experiencing difficulty in beginning reading. Certainly the variability of pupils taught by a specific method or program is a matter of interest. Table 6:59 records the standard deviation of scores by treatment on all outcome measures. The standard deviations reported are pooled estimates based on all pupils within classes labeled Basal, I.T.A., Linguistic, Language Experience, Basal plus Phonics, and Phonic/ Linguistic. These measures of variability should be considered illustrative only because of the problems involved in pooling data from different projects. However, there is an unusual degree of

Table 6:59

Standard Deviations of Stanford Measures According to Treatment

	Word Reading	Paragraph Meaning	Vocabulary	Spelling	Word Study Skills
Basal (4266)	6.03	7.61	5.72	5.36	8.71
Basal plus Phonics (1104)	6.49	8.34	5.58	5.34	9.32
I.T.A. (1055)	6.98	9.54	5.89	5.13	8.96
Language Experience (1431)	6.60	8.53	5.86	4.85	8.49
Linguistic (760)	6.29	7.33	5.15	4.79	7.76
Lippincott (488)	6.44	9.33	6.08	5.49	8.98

NOTE: These standard deviations are pooled estimates based on all pupils within classes labeled basal, i.t.a., etc. Numbers in parentheses indicate number of individuals on whom standard deviation is calculated.

similarity in variability among the various treatments. All of the standard deviations for the Word Reading subtest, for example, are greater than six but less than seven. These are certainly negligible differences. The variability is somewhat greater for the Paragraph Meaning subtest. For this test the lowest variability was found for the Linguistic treatment while the highest variability was reported for the I.T.A. treatment. However, the differences are probably of limited practical significance. The six standard deviations are within one point of each other for the Vocabulary subtest. The same can be said for the Spelling subtest. Furthermore, the intertreatment variability is only slightly greater for the Word Study Skills subtest. Based on the information reported here there is little to indicate that the variability of pupils differs to any extent from treatment to treatment.

Summary of Treatment Comparisons

A summary of the within-projects treatment comparisons is presented in Tables 6:60, 6:61, 6:62, and 6:63. Each of the tables lists the methods compared and the number of projects in which significant differences favored either the basal approach or the non-basal approach. The number of projects in which no differences between treatments were found is also recorded. Tables 6:60 and 6:61 report significant differences for the Stanford Achievement Test; Tables 6:62 and 6:63 report data on the individual sample measures. As a general finding it can be stated that the non-basal programs tended to produce pupils with better word recognition skills than did the Basal programs. This finding was especially true with respect to the I.T.A., Phonic/Linguistic, and Basal plus Phonics programs. Differences between basal and non-basal approaches were less consistent with respect to Paragraph Meaning, Spelling, rate of reading, and reading accuracy. Furthermore, there was little evidence that any approach increased or decreased variability of pupil achievement in reading.

Another general finding is that girls tended to have a greater degree of readiness for reading at the beginning of the first grade and tended to achieve at a higher level in reading at the end of the first grade. In most cases differences in reading achievement which favored girls at the end of the year disappeared when the criterion scores were adjusted for differences in prereading ability. This finding supports the general conclusion that girls are more mature in the first grade and more able to profit from instruction. A related finding in this investigation was that none of the treatments had a unique effect on the achievement of boys and girls. That is, no significant sex by treatment interactions were found to exist. On the average, girls tended to achieve at a higher rate in all programs.

Table 6:60

Comparison of Basal and Non-Basal Subjects on the Stanford Word Reading, Paragraph Meaning, and Spelling Subtests

Methods Compared	Number of Studies	Word Reading			Paragraph Meaning			Spelling		
		Non-Basal Method Superior*	No Significant Difference	Basal Reader Superior*	Non-Basal Method Superior*	No Significant Difference	Basal Reader Superior*	Non-Basal Method Superior*	No Significant Difference	Basal Reader Superior*
I.T.A. vs Basal	5	3	2	0	1	4	0	1	1	3
Linguistic vs Basal	3	1	2	0	0	3	0	1	2	0
Basal + Phonics vs Basal	4	0	4	0	1	3	0	1	3	0
Language Experience vs Basal	4	2	2	0	1	2	1	0	4	0
Phonic/ Linguistic vs Basal	3	3	0	0	2	1	0	1	2	0

* P < .05

Table 6:61

Comparison of Basal and Non-Basal Subjects on the Stanford Vocabulary and Word Study Skills Subtests

Methods Compared	Number of Studies	Vocabulary			Word Study Skills		
		Non-Basal Method Superior*	No Significant Difference	Basal Reader Superior*	Non-Basal Method Superior*	No Significant Difference	Basal Reader Superior*
I.T.A. vs Basal	5	0	5	0	2	3	0
Linguistic vs Basal	3	0	3	0	1	2	0
Basal + Phonics vs Basal	4	1	3	0	2	2	0
Language Experience vs Basal	4	1	3	0	1	3	0
Phonic/ Linguistic vs Basal	3	0	3	0	1	2	0

* $P < .05$

Table 6:62

Comparison of Basal and Non-Basal Subjects
on the Fry and Gates Word Lists

Methods Compared	Number of Studies	Fry			Gates		
		Non-Basal Method Superior*	No Significant Difference	Basal Reader Superior*	Non-Basal Method Superior*	No Significant Difference	Basal Reader Superior*
I.T.A. vs Basal	5	4	1	0	3	2	0
Linguistic vs Basal	3	2	1	0	0	3	0
Basal + Phonics vs Basal	4	1	3	0	2	2	0
Language Experience vs Basal	3	1	2	0	1	2	0
Phonic/ Linguistic vs Basal	3	3	0	0	3	0	0

* P < .05

Table 6:63

Comparison of Basal and Non-Basal Subjects on the Gilmore Accuracy and Rate Scores

Methods Compared	Number of Studies	Gilmore Accuracy			Gilmore Rate		
		Non-Basal Method Superior*	No Significant Difference	Basal Reader Superior*	Non-Basal Method Superior*	No Significant Difference	Basal Reader Superior*
I.T.A. vs Basal	5	1	4	0	0	5	0
Linguistic vs Basal	3	0	3	0	0	1	2
Basal + Phonics vs Basal	4	0	3	1	0	4	0
Language Experience vs Basal	3	1	2	0	0	3	0
Phonic/ Linguistic vs Basal	3	1	2	0	0	3	0

* P < .05

One of the most striking findings was the persistence of project differences in reading achievement even after adjustments were made for differences in pupil readiness for reading. Evidently, reading achievement is influenced by factors peculiar to school systems over and above differences in measured prereading capability of pupils.

Discussion of the Analysis of Treatment Comparisons

There are a number of limitations involved in interpreting the findings of the analysis of treatment comparisons. A first limitation is that not all treatments were represented in all projects. This made it impossible to make direct comparisons between such treatments as I.T.A., Language Experience, Linguistic, and Phonic/Linguistic. The tremendous project differences in achievement would have made comparisons between treatments found in different projects meaningless. As a result, it was only possible to compare the various experimental treatments with the basal treatment in each project. Of course, these other comparisons have been made in the reports of the individual projects.

Another limitation is that treatments labeled Linguistic, Basal, Basal plus Phonics, and I.T.A. did not follow exactly the same program in each project. For example, the Basal reader approach was considered a single treatment even though a variety of Basal programs were used in the various projects. Furthermore, the Linguistic, Basal plus Phonics, and I.T.A. treatments also used different materials from project to project. Furthermore, the Language Experience approach was not exactly the same instructional program in the four projects which utilized this treatment. Grouping programs and materials into a single category should not disguise the fact that actual differences existed in the instructional program within a category.

Another limitation of the study is that there was evidence of non-random assignment of pupils to treatments in certain projects. In some cases there were substantial differences in pupil performance on premeasures for the experimental treatments. The analysis of covariance was used to adjust for premeasure differences but there is a question of how adequately this statistical technique adjusts for differences in capabilities between groups.

Another limitation which might influence the results is that there appeared to be differences among projects in the extent to which the Hawthorne effect was controlled. It is likely that the newer programs profited from the increased motivation, the greater teacher and parental interest, the awareness on the part of pupils and teachers that experimentation was going on, and similar factors usually associated with new methodological techniques. The extent to which these extraneous factors were controlled in the various projects undoubtedly influenced the results. In this regard, it is likely that the less traditional instructional programs profited from whatever Hawthorne effect was present in the investigation.

CHAPTER VII

ANALYSIS OF TREATMENT BY READINESS LEVEL

This chapter reports the section of the analysis which was designed to test for differential treatment effects for pupils who possessed different pre-reading characteristics. Chapter VI of this report discussed the analysis of general treatment effects across all levels of readiness. The analysis reported in this chapter, however, sought to assess the relative effectiveness of treatments for pupils of low, average, and high readiness for reading as measured by tests of intelligence, auditory discrimination, and letter knowledge. Using the Basal versus non-Basal comparisons employed in the main analysis reported in Chapter VI, subjects were blocked in turn according to performance on the Pintner-Cunningham Primary Test, the Murphy-Durrell Phonemes Test, and the Murphy-Durrell Letter Names Test. A separate analysis of variance was conducted to test differential treatment effects for various levels of performance on the three variables.

The focus of interest in each analysis of variance was the appropriate treatment by intelligence, treatment by auditory discrimination, and treatment by letter knowledge interaction. A significant interaction would indicate that treatments were not operating in the same fashion across all levels of performance on the specific measure being utilized. When a significant interaction of this sort was located, the data were scanned to find the reason. An interesting possible explanation would be that one treatment was more effective for low-readiness pupils, another treatment more effective for high-readiness pupils.

Because of the nature of this section of the analysis, individuals were used as the experimental unit. Half class means computed separately for the sexes were used as the experimental unit in the analysis of method discussed in Chapter VI. Since the same pupils were involved in both analyses it was possible to compare treatment effects in the two methods of analysis. This comparison is reported in Chapter VIII.

Blocking on Intelligence

Subjects were categorized according to performance on the Pintner-Cunningham Primary Test in order to test for differential treatment effects for pupils with varying levels of intelligence. Four levels of intelligence were established. Cutoff points were selected in such a way that approximately one-fourth of the population in each Basal versus non-Basal comparison fell in each of the four mental age categories. Furthermore, cutoff points were set so as to be identical for all Basal versus non-Basal comparisons. For example, the high intelligence group in all comparisons (Basal versus I.T.A., Basal versus Basal plus Phonics, Basal versus Language Experience, Basal versus Linguistic, and Basal versus Phonic/Linguistic) was comprised of those pupils who obtained raw scores of 44 or higher on the intelligence measure. Likewise, the low intelligence group in each of the comparisons consisted of pupils who scored 33 or lower. Pupils in the high-middle range of intelligence scored 39 to 43 while pupils in the low-middle range scored 34 to 38.

The numbers of pupils who fell in each of the four levels of intelligence within each sex, treatment, and project are reported in Tables 7:01, 7:02, 7:03, 7:04, and 7:05. It should be noted that relatively small numbers of subjects were found in certain cells, a case in point being high-intelligence males in the Phonic/Linguistic treatment in Hayes' project. As a result, the findings of this section of the analysis should be interpreted with caution.

Cell frequencies for the Language Experience versus Basal comparison are illustrative of those for other treatment comparisons. These cell frequencies are reported in Table 7:03. Adding across projects reveals that there were 1431 pupils in the Language Experience group and 1523 pupils in the Basal group. Adding across sex reveals that there were 1540 boys and 1414 girls in all of the projects. A breakdown of intelligence levels by sex results in the finding that there were 405 boys and 452 girls in the highest level of intelligence. The high-middle range of intelligence included 366 boys and 365 girls. The low-middle range of intelligence was comprised of 287 boys and 279 girls. The lowest level of intelligence included 482 boys and 318 girls.

It is possible to analyze the table further to determine the number of subjects who made up the high, high-middle, low-middle, and low intelligence groups. Summing across sex, treatment, and project reveals that there were 857 pupils in the high intelligence group, 731 pupils in the high-middle intelligence gorup, 566 pupils in the low-middle intelligence group, and 800 pupils in the lowest intelligence group. Therefore, for this particular treatment comparison the cutoff points selected did not succeed in placing one-fourth of the pupils within each of the intelligence levels. However, it should be remembered that the cutoff points were selected to divide the total population (all five treatment comparisons combined) into approximately four levels. Therefore, for each of the five treatment comparisons some deviation from this standard resulted.

Table 7:01

Cell Frequencies for Each Level of Intelligence for the Basal vs I.T.A. Treatments

Project	Sex	Trt.	L (33 or less)	LM (34-38)	HM (39-43)	H (44 or more)
Fry	Male	Basal	17	7	10	21
		ITA	21	13	22	15
	Female	Basal	4	5	16	30
		ITA	12	11	20	20
Hahn	Male	Basal	28	26	44	50
		ITA	29	23	36	44
	Female	Basal	24	19	45	40
		ITA	25	20	31	47
Hayes	Male	Basal	25	8	7	5
		ITA	24	8	2	10
	Female	Basal	16	8	6	12
		ITA	26	10	10	6
Mazurkiewicz	Male	Basal	31	30	52	56
		ITA	44	38	31	67
	Female	Basal	18	22	45	63
		ITA	30	24	38	58
Tanyzer	Male	Basal	38	41	20	19
		ITA	26	32	32	34
	Female	Basal	23	23	27	37
		ITA	12	14	43	47

Table 7:02

Cell Frequencies for Each Level of Intelligence for the Basal vs Basal plus Phonics Treatments

Project	Sex	Trt.	L (33 or less)	LM (34-38)	HM (39-43)	H (44 or more)
Bordeaux	Male	Basal	6	11	14	32
		B+P	5	14	15	31
	Female	Basal	4	3	9	32
		B+P	5	13	15	21
Hayes	Male	Basal	25	8	7	5
		B+P	32	7	5	6
	Female	Basal	16	8	6	12
		B+P	25	13	12	3
Manning	Male	Basal	75	37	31	15
		B+P	64	44	14	12
	Female	Basal	60	41	34	17
		B+P	50	32	27	17
Murphy	Male	Basal	53	17	23	17
		B+P	129	57	60	37
	Female	Basal	42	25	24	13
		B+P	80	46	62	47

Table 7:03

Cell Frequencies for Each Level of Intelligence for the Basal vs Language Experience Treatments

Project	Sex	Trt.	L (33 or less)	LM (34-38)	HM (39-43)	H (44 or more)
Cleland	Male	Basal	68	46	44	34
		LE	56	25	26	24
	Female	Basal	44	42	44	54
		LE	47	32	37	40
Hahn	Male	Basal	28	26	44	50
		LE	21	34	38	42
	Female	Basal	24	19	45	40
		LE	24	20	32	58
Kendrick	Male	Basal	119	65	75	95
		LE	75	61	88	108
	Female	Basal	65	67	75	91
		LE	52	60	82	111
Stauffer	Male	Basal	68	18	25	16
		LE	47	12	26	36
	Female	Basal	21	22	27	22
		LE	41	17	23	36

Table 7:04

Cell Frequencies for Each Level of Intelligence

for the Basal vs Linguistic Treatments

Project	Sex	Trt.	L (33 or less)	LM (34-38)	HM (39-43)	H (44 or more)
Ruddell	Male	Basal	18	10	15	17
		Ling	25	6	5	15
	Female	Basal	17	14	9	20
		Ling	27	7	5	7
Schneyer	Male	Basal	100	16	22	32
		Ling	108	22	26	23
	Female	Basal	73	26	25	40
		Ling	102	18	22	26
Sheldon	Male	Basal	8	20	19	26
		Ling	47	24	40	43
	Female	Basal	7	6	19	38
		Ling	43	13	38	68

Table 7:05

Cell Frequencies for Each Level of Intelligence for the Basal vs Phonic/Linguistic Treatments

Project	Sex	Trt.	L (33 or less)	LM (34-38)	HM (39-43)	H (44 or more)
Hayes	Male	Basal	25	8	7	5
		P/L	33	10	6	4
	Female	Basal	16	8	6	12
		P/L	22	9	7	8
Tanyzer	Male	Basal	38	41	20	19
		P/L	22	21	24	39
	Female	Basal	23	23	27	37
		P/L	10	8	23	39
Wyatt	Male	Basal	15	9	32	31
		P/L	14	13	28	34
	Female	Basal	12	25	35	51
		P/L	11	13	44	46

After the cutoff points were established, a four-way analysis of variance was employed in which pupils were blocked on intelligence, project, treatment, and sex. For each Basal versus non-Basal comparison an across-projects analysis similar to that described in Chapter VI was conducted on the assumption that within each project treatments were assigned at random to a set of classes. The across-projects analysis would be meaningful only if no treatment by project interactions were found. The existence of significant treatment by project interactions would indicate that treatments were not operating in the same fashion across all projects and that interpretation of any effects involving treatment would then be difficult. A summary of all of the treatment by project interactions for the various Basal versus non-Basal comparisons is recorded in Table 7:06. It is obvious that treatments did operate differently in various projects and that therefore a within-projects analysis was necessary.

A within-projects analysis for each Basal versus non-Basal treatment comparison was conducted along the lines of the analysis described in Chapter VI. The first step in the within-projects analysis was to conduct an analysis of variance blocking on sex, treatment, and intelligence. Primary attention in this analysis was focused on the treatment and treatment by level of intelligence effects. In the discussion which follows only these two treatment effects will be reported for each project within each treatment comparison.

Following the analysis of variance, an analysis of covariance was also conducted using the readiness premeasures (except for the intelligence test) as covariates. The treatment effects which resulted from this covariance analysis will be reported for each treatment comparison. However, the treatment by readiness interaction will not be reported. The use of the seven readiness scores as covariates tended to eliminate treatment differences among the four levels of intelligence and also practically eliminated intelligence differences. This destroyed the reason for the analysis which was to see whether or not treatments had a differential effect on high and low readiness pupils. Therefore, interpretation of differential treatment effects will be based on the within-projects analysis of variance.

Basal versus I.T.A. Treatment Comparison

A summary of the within-projects analysis of the I.T.A. versus Basal comparison blocking on sex, intelligence, and treatment is reported in Table 7:07. Only the treatment and treatment by intelligence effects are reported for each project. Columns A of the of the table report the analysis of variance. The table reports many significant treatment effects, most of which favor the I.T.A. treatment. However, only one significant treatment by intelligence

Table 7:06

Treatment by Project Interactions on Stanford Measures
for Basal vs Non-Basal Treatment Comparisons
(Blocking on Intelligence)

Comparisons	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
I.T.A. vs Basal	23.49**	25.68**	13.94**	17.04**	2.78*	.52	45.96**	43.19**	23.31**	21.70**
Degrees of Freedom	(4, 1993)	(4, 1986)								
Basal plus Phonics vs Basal	5.61**	2.76*	3.13*	1.70	9.37**	6.81**	14.36**	10.41**	4.41**	2.41
Degrees of Freedom	(3, 1658)	(3, 1651)								
Language Experience vs Basal	12.45**	10.62**	30.47**	28.54**	6.15**	8.58**	4.08**	3.31*	8.85**	7.61**
Degrees of Freedom	(3, 2890)	(3, 2883)								
Linguistic vs Basal	12.57**	17.32**	6.29**	6.13**	2.80	5.30**	12.07**	12.73**	5.52**	5.67**
Degrees of Freedom	(2, 1309)	(2, 1302)								
Phonic / Linguistic vs Basal	13.11**	12.31**	8.64**	8.80**	6.51**	2.38	5.79**	8.58**	10.33**	9.26**
Degrees of Freedom	(2, 965)	(2, 958)								

NOTE: Column A reports analysis of variance; Column C, analysis of covariance with all seven premeasures as covariates. One asterisk signifies interaction is significant at .05 level; two asterisks, .01 level.

Table 7:07

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs I.T.A. Comparison (Blocking on Intelligence)

Effect	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
1 Treatment	5.09n	12.29N	.54	.00	.12	.61	17.92B	15.61B	5.38n	11.15N
Treatment x Intelligence	2.33		1.27		.82		.21		.23	
2 Treatment	10.24N	5.48n	.07	.93	1.04	.01	17.06B	32.68B	2.49	.19
Treatment x Intelligence	2.08		1.08		2.54		1.04		1.08	
3 Treatment	60.84N	60.18N	12.75N	6.76N	1.13	.12	71.39N	69.62N	36.07N	31.07N
Treatment x Intelligence	.86		2.96*		.12		1.11		2.08	
4 Treatment	3.08	28.31N	.08	11.42N	4.69b	.01	116.92B	81.05B	7.85B	.19
Treatment x Intelligence	1.04		2.38		.66		.77		.24	
5 Treatment	125.01N	176.45N	55.64N	81.20N	3.51	2.00	3.95n	9.67N	71.39N	90.40N
Treatment x Intelligence	1.04		1.86		1.92		.17		.57	

NOTE: Projects in numerical order are Fry, Hahn, Hayes, Mazurkiewicz, and Tanyzer. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring I.T.A. indicated by N or n, Basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 1993 d.f.; those in Column C, 1 and 1986 d.f.; interactions in Column A, 3 and 1993 d.f.

interaction was found. Obviously, the I.T.A. treatment produced somewhat better readers across all levels of intelligence. There is no indication that the Basal and I.T.A. treatments operated differently for pupils with varying degrees of intellectual ability.

Basal versus Basal plus Phonics Treatment Comparison

The within-projects analysis of the Basal versus Basal plus Phonics comparison is reported in Table 7:08. The treatment effects reported for both the analysis of variance and covariance favor the Basal plus Phonics treatment in every instance except for the Vocabulary subtest in project two. However, no treatment by intelligence interactions were found to be significant in any of the projects. These two findings would indicate that the Basal plus Phonics approach was somewhat superior to the Basal approach for high intelligence, average intelligence, and low intelligence pupils alike and that the extent of this superiority was consistent across intelligence levels. Furthermore, there was no indication that one treatment was better for high-intelligence pupils, the other treatment better for low-intelligence pupils.

Basal versus Language Experience Treatment Comparison

A summary of the within-projects analysis for the Basal versus Language Experience treatment comparison is presented in Table 7:09. Again only the treatment and treatment by interaction effects are reported. A number of treatment effects were found to be statistically significant in the various projects. In three of the four projects the differences favored the Language Experience approach while in the fourth project the differences favored the Basal approach. However, a number of significant treatment by intelligence interactions were found. Projects 1 and 3 reported significant interactions between treatment and intelligence on the Vocabulary subtest, while project 4 recorded significant interactions on all five subtests.

The reason for the interaction in project 4 is reported in Table 7:10. On each of the subtests the Language Experience approach was superior to the Basal approach for the upper three levels of intelligence. However, in each case the Basal approach produced higher performance for the low intelligence pupils. The data from project 4 would indicate that the less capable pupil would profit more from a Basal program while more capable pupils would profit from the Language Experience approach. However, this conclusion is tempered by the fact that significant project by treatment interactions were not found on the four reading-related achievement measures for the other three projects in the Basal versus Language Experience comparison.

Table 7:08

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Basal plus Phonics Comparison (Blocking on Intelligence)

Effects	Word Reading A	Word Reading C	Paragraph Meaning A	Paragraph Meaning C	Vocabulary A	Vocabulary C	Spelling A	Spelling C	Word Study Skills A	Word Study Skills C
1 Treatment	3.40	1.84	.37	.01	3.17	.69	3.21	2.74	1.01	.10
Treatment x Intelligence	1.54		1.29		.52		.80		.71	
2 Treatment	3.67	9.40N	1.18	3.82	6.62b	5.12b	10.93N	16.29N	3.27	6.42n
Treatment x Intelligence	1.05		.16		.46		1.29		.19	
3 Treatment	51.48N	17.73N	29.94N	6.76N	41.56N	17.86N	94.42N	52.18N	49.42N	22.07N
Treatment x Intelligence	.43		.50		.33		.18		.41	
4 Treatment	4.37n	1.62	11.27N	7.63N	15.36N	22.75N	.91	.01	7.76N	5.38n
Treatment x Intelligence	.80		1.85		.88		.14		.06	

NOTE: Projects in numerical order are Bordeaux, Hayes, Manning, and Murphy. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring Basal plus Phonics indicated by N or n, Basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. Treatment effects in Column A based on 1 and 1658 d.f.; those in Column C, 1 and 1651 d.f.; interactions in Column A, 3 and 1658 d.f.

Table 7:09

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Language Experience Comparison (Blocking on Intelligence)

Effect	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
1 Treatment	17.36N	43.25N	9.39N	22.54N	19.46N	42.52N	1.08	.03	8.28N	23.09N
Treatment x Intelligence	.43		1.24		3.49*		.46		.81	
2 Treatment	5.97n	5.60n	.42	.10	1.43	.96	1.18	.75	.89	.49
Treatment x Intelligence	1.15		1.95		.68		.46		1.06	
3 Treatment	6.23b	.04	81.88B	52.38B	1.52	.68	5.24b	1.12	17.22B	1.84
Treatment x Intelligence	2.02		.92		3.92**		.47		1.91	
4 Treatment	17.86N	20.68N	8.88N	9.65N	.59	.64	5.72n	9.07N	.52	.33
Treatment x Intelligence	10.40**		12.58**		8.22**		6.34**		10.82**	

NOTE: Projects in numerical order are Cleland, Hahn, Kendrick, and Stauffer. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring language experience indicated by N or n, basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 2890 d.f.; those in Column C, 1 and 2883 d.f.; interactions in Column A, 3 and 2890 d.f.

Table 7:10

Unadjusted Stanford Means for Project Four in Basal vs Language Experience Comparison by Treatment and Level of Intelligence

	Word Reading		Paragraph Meaning		Spelling		Word Study Skills	
Level of Intelligence	Basal	LE	Basal	LE	Basal	LE	Basal	LE
High Intelligence 44 or more	19.4	25.9	20.3	28.6	12.8	16.3	38.7	45.7
High-Middle Intelligence 39 - 43	17.7	22.5	17.9	23.4	10.1	13.7	37.3	39.8
Low-Middle Intelligence 34 - 38	16.5	20.7	15.4	19.9	9.8	12.8	34.2	37.4
Low Intelligence 33 or less	13.1	11.5	12.7	9.2	6.0	4.3	28.4	23.4

Because the interactions were primarily restricted to one project, the data were examined further. It was possible that an examination of performance on premeasures would reveal the reason for the significant interactions. Table 7:11 presents relevant information. The same pattern of performance existed on the premeasures as had been found on the Stanford Achievement Test. Within the lowest range of intelligence, Basal pupils scored better on readiness measures than did children in the Language Experience treatment. Within the higher range of intelligence, however, Language Experience pupils were more ready for reading. This finding suggests that the significant treatment by intelligence interactions on the post-instructional achievement measures were simply a reflection of treatment by project interactions on readiness measures. Low intelligence Basal pupils were more ready for reading in other respects than were low intelligence Language Experience pupils and they became more successful readers. High intelligence Language Experience pupils were more ready for reading in respects other than intelligence than were their high intelligence Basal counterparts and they became better readers. Therefore, the interactions between treatment and intelligence on the achievement measures probably is of little educational significance.

Basal versus Linguistic Treatment Comparison

The summary of the within-projects analysis for the Basal versus Linguistic treatment comparison is reported in Table 7:12. The analysis of variance and analysis of covariance point out a number of significant treatment differences, some favoring the Basal approach and some favoring the Linguistic approach. However, only one significant treatment by intelligence interaction was found, that for the Vocabulary subtest. Therefore, there is nothing to indicate that the treatments operated differentially for pupils of high or low intelligence. In some projects the Basal approach was superior and the superiority was evident for all ranges of intelligence. In other projects the Linguistic approach was superior and the superiority held up across all ranges of intelligence.

Basal versus Phonic/Linguistic Treatment Comparison

Selected treatment effects from the within-projects analysis of the Basal versus Phonic/Linguistic comparisons are presented in Table 7:13. The analysis of variance and analysis of covariance found many significant treatment differences favoring the Phonic/Linguistic treatment. However, only two treatment by project interactions were found to be significant. One of these interactions involved the Vocabulary subtest while the other involved the Paragraph Meaning subtest. Therefore, it is apparent that the Phonic/Linguistic program was superior across all levels of intelligence. There was no indication that the Basal approach was better for pupils of a given intellectual capability while the Phonic/Linguistic program was better for pupils of a different level of intelligence.

Table 7:11

Unadjusted Premeasure Means for Project Four in Basal vs Language Experience Comparison by Treatment and Level of Intelligence

Level	Murphy-Durrell Phonemes		Murphy-Durrell Letter Names		Murphy-Durrell Learning Rate	
	Basal	LE	Basal	LE	Basal	LE
High Intelligence 44 or more	19.2	23.7	20.0	26.1	22.6	24.5
High-Middle Intelligence 39 - 43	19.4	22.9	19.9	23.8	22.1	22.8
Low-Middle Intelligence 34 - 38	19.2	22.7	18.4	22.1	19.4	21.7
Low Intelligence 33 or less	18.0	17.8	18.2	16.3	18.9	17.4

Table 7:12

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Linguistic Comparison (Blocking on Intelligence)

Effect	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
1 Treatment	24.92N	44.46N	.04	.33	.33	2.95	7.12N	9.56N	3.06	5.78n
Treatment x Intelligence	1.61		.97		.83		1.58		.31	
2 Treatment	1.98	.57	4.43b	2.84	12.34B	10.56B	15.98B	15.02B	9.81B	7.19B
Treatment x Intelligence	1.06		.41		4.32**		.13		1.00	
3 Treatment	.01	6.77N	28.99B	22.45B	9.89B	1.82	17.69B	11.40B	6.66B	1.06
Treatment x Intelligence	.99		.76		1.19		.67		.55	

NOTE: Projects in numerical order are Ruddell, Schneyer, and Sheldon. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring linguistic indicated by N or n; basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 1309 d.f.; those in Column C, 1 and 1302 d.f.; interactions in Column A, 3 and 1309 d.f.

Table 7:13

Selected Treatment Effects From Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Phonic/Linguistic Comparison (Blocking on Intelligence)

Effect	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
1 Treatment	64.75N	100.71N	15.85N	27.09N	.08	1.96	25.84N	42.51N	19.94N	39.40N
Treatment x Intelligence	1.90		1.11		3.55*		1.90		1.67	
2 Treatment	173.11N	142.23N	44.13N	23.98N	30.49N	7.79N	35.90N	17.76N	64.37N	33.15N
Treatment x Intelligence	1.45		4.04**		.18		.59		1.28	
3 Treatment	51.01N	65.41N	3.80	3.30	1.12	.28	8.65N	10.77N	6.48n	8.52N
Treatment x Intelligence	.42		.11		.19		.16		.12	

NOTE: Projects in numerical order are Hayes, Tanyzer, and Wyatt. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring phon/ling indicated by N or n; basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 958 d.f.; those in Column C, 1 and 951; interactions in Column A, 3 and 958 d.f.

Summary

For four of the five Basal versus non-Basal treatment comparisons there was no evidence of differential treatment effects according to pupil intelligence. Either no difference between the Basal and non-Basal treatment existed or the superior treatment operated in the same fashion across all levels of intelligence. On the other hand, there was some evidence in the analysis of the Basal versus Language Experience comparison that the Language Experience approach was superior for average and above-average pupils, while the Basal approach was better for the pupils at the lowest level of intelligence. This finding, however, has limited significance in light of the fact that differences between treatments in performance on premeasures other than intelligence were very similar to the differences found on achievement measures.

Blocking on Phonemes

Pupils were classified as having high, average, or low auditory discrimination by setting up cutoff points on the Murphy-Durrell Phonemes Test. The cutoff points were established so that approximately one-third of the total population fell into each of three categories. Information concerning the numbers of pupils from each of the projects who fell in each of the auditory discrimination levels is reported in the Appendix. Summaries of the across-projects and within-projects analyses are also reported in the appendix. The results can be summarized by stating that except for the Basal versus Language Experience comparison, very few treatment by auditory discrimination interactions were found to be significant. Where treatment differences were found to be significant in a Basal versus non-Basal comparison the usual finding was that the superior treatment was superior over all three levels of auditory discrimination. There was no indication that Basal and non-Basal treatments operated differentially for the three levels of auditory discrimination. Tables similar to those presented for the various treatment comparisons blocked on intelligence are presented in the Appendix for the various treatment comparisons blocked on the Murphy-Durrell Phonemes Test.

Auditory discrimination by treatment interactions were found to be significant in the Language Experience versus Basal comparisons. Pupils with low auditory discrimination profited more from instruction in a basal program while pupils with average and high auditory discrimination gained more from a Language Experience approach. However, this finding again must be interpreted in light of an identical treatment by auditory discrimination interaction on many premeasures. Basal pupils in the low auditory discrimination group were superior to similar Language Experience pupils on the Letter Names, Learning Rate, and Pintner-Cunningham Primary Test. The reverse was true of pupils with high auditory discrimination skills. Among this group, the Language Experience pupils were superior in performance on the premeasures. This interaction involving premeasures probably explains the interaction involving post-measures.

Blocking on Letter Knowledge

An analysis similar to the one used blocking on intelligence and auditory discrimination was conducted blocking on letter knowledge. Pupils were placed in approximately equal numbers in four categories according to letter knowledge as measured by the Murphy-Durrell Letter Names Test. The numbers of pupils within each project who were placed in the four levels of letter knowledge are presented in the Appendix. Summaries of the analysis of variance and analysis of covariance pertinent to this aspect of the data analysis are also presented in the Appendix. In general, the results showed that few if any significant treatment by letter knowledge interactions were found for the Basal versus I.T.A., Basal versus Basal plus Phonics, Basal versus Linguistic, and Basal versus Phonic/Linguistic comparisons. Whenever treatment differences were found to be significant, the superior treatment was superior across all levels of letter knowledge. There was no indication that the Basal treatment was particularly effective for pupils with high or low letter knowledge while the non-Basal treatment was more effective for pupils with the opposite characteristics.

This finding did not hold true for the Basal versus Language Experience comparison. In that treatment comparison a number of treatment by letter knowledge interactions (mostly in one project) were found to be significant. An examination of the data revealed that these interactions resulted from the fact that pupils low in letter knowledge profited more from the Basal approach while pupils at the higher levels of letter knowledge achieved better under the influence of the language arts program. However, the same problem of dissimilarity in readiness characteristics of Basal and Language Experience pupils that existed in the analysis blocking on intelligence and the analysis blocking on auditory discrimination was evident also in this case. The significant treatment by letter knowledge interactions on achievement measures appeared to be merely reflections of treatment by letter knowledge interactions on other premeasures.

Summary

For four of the five Basal versus non-Basal comparisons there was no evidence of a differential treatment effect for various levels of intelligence, auditory discrimination, or letter knowledge. Very few, if any, significant treatment by intelligence, treatment by auditory discrimination, or treatment by letter knowledge interaction effects were found to be significant. This finding of no interaction between treatment and readiness characteristics generally held true for the Basal versus I.T.A., Basal versus Basal plus Phonics, Basal versus Linguistic, and Basal versus Phonic/Linguistic treatment comparisons.

A somewhat different conclusion could be drawn from the analysis involving the Basal versus Language Experience comparison. For this treatment comparison, a number of treatment by intelligence, treatment by auditory discrimination, and treatment by letter knowledge interactions were found to be significant. The interactions resulted from the fact that the least mature pupils achieved better in a Basal program than in a Language Experience program. Conversely, more capable students with respect to these skills profited more from a Language Experience approach. It should be emphasized again, however, that this finding probably resulted from similar differential readiness characteristics of Basal and Language Experience pupils and therefore, has questionable significance.

CHAPTER VIII

COMPARISON OF CLASS MEAN AND INDIVIDUAL ANALYSIS

There is a continuing controversy in educational research about the relative merits of using individual pupils or classes as the experimental unit. Many authorities of experimental design insist that in typical classroom experimentation, the class should be considered the experimental unit. This belief is based on at least two reasons. First, classes or teachers (and not pupils) are usually assigned to experimental treatment. Secondly, regardless of the sampling technique employed, pupils within a given class have a number of things in common in addition to the experimental treatment which might tend to make the class a more reasonable experimental unit. For one thing they have the same teacher. Furthermore, they are subject to the same extraneous factors such as class disruptions which are common to all individuals in a classroom and are peculiar to that classroom.

The techniques of analysis utilized in this study made possible a comparison of the results which were obtained using either the class or the individual as the experimental unit. For the major section of the analysis, that involving instructional methodology reported in Chapter VI, half-class means computed separately for males and females were used as the experimental variable. This procedure seemed to be appropriate considering the designs of the individual studies and the arguments advanced in the last paragraph. However, the analysis designed to test for differential treatment effects according to level of readiness as reported in Chapter VII used the individual pupil as the experimental unit. Treatment effects were evaluated in both analyses and in each case the analysis was based on exactly the same subjects. Therefore, it is possible to compare the findings to determine the extent of agreement.

Before comparing the results, a word should be said about the comparability of the two analyses. Although the same individuals were used, the analyses differed in minor ways over and above the different experimental units employed. In the analysis of variance based on individual pupils, intelligence, sex, and treatment were used as blocking variables. Only sex and treatment were blocked in the class mean analysis. The covariance analyses differed somewhat also. In the class mean analysis, the Pintner-Cunningham Primary Intelligence Test was used as a covariate along with the Murphy-Durrell Phonemes, Murphy-Durrell Letter Names, Murphy-Durrell Learning Rate, Thurstone-Jeffrey Identical Forms, Metropolitan Word Meaning, and Metropolitan Listening subtests. In the individual pupil analysis, the Pintner-Cunningham test was used as a blocking variable while the six readiness tests listed above, along with the Thurstone Pattern Copying Test, were used as covariates. It is difficult to assess the effect that these differences would have on the evaluation of treatment differences, but they should be considered in interpreting the comparisons of class mean and individual analyses presented in this chapter.

Comparisons of the results are reported in Tables 8:01, 8:02, 8:03, 8:04, and 8:05. Table 8:01 records the comparisons for the Basal versus I.T.A. treatments. The upper section of the table compares the analysis of variance within projects for each achievement variable. The lower section of the table reports the comparison of covariance analyses. In the two analyses of variance, five more significant treatment differences were found in the individual analysis than were found in the class mean analysis. Moreover, in every case where significant differences were found in the class mean analysis they were also found in the individual analysis. A similar situation existed in the two analyses of covariance. Six additional significant treatment differences were found in the individual analysis. Again there were no cases where a significant treatment difference was found in the class mean analysis but not in the individual analysis. Therefore, in the I.T.A. versus Basal comparison more significant differences were reported in the analysis which used individuals as the experimental unit.

Comparisons of the two analyses for the Basal versus Basal plus Phonics treatments are recorded in Table 8:02. Here again the individual analysis resulted in more significant treatment differences. In the analysis of variance using individuals as the experimental unit four significant treatment differences were found that were not found to exist in the class mean analysis. Furthermore, twelve significant treatment differences were found for the various achievement subtests within projects in the individual covariance analysis while only five significant treatment differences were found when class means were used as the experimental unit. The class mean analysis again proved to be a much more conservative analysis.

The same pattern emerged in the comparison of Basal versus Language Experience treatments in Table 8:03. Whereas the analysis of variance using class means as experimental units produced only two significant treatment differences for the various outcome measures within projects, the analysis of variance which employed individuals as the experimental unit reported eleven significant treatment differences. The differences in the two analyses of covariance were not as striking but followed the same trend. Six

Table 8:01

Comparison of Treatment Differences in Class Mean and Individual Analyses for the Basal vs I.T.A. Treatments

Analysis of Variance

Project	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis
Fry	.1	5.1n	1.3	.5	.5	.1	7.5B	17.9B	.4	5.4n
Hahn	1.7	10.2N	.0	.1	.1	1.0	4.6b	17.1B	.4	2.5
Hayes	11.5N	60.8N	1.3	12.7N	.0	1.1	15.7N	71.4N	6.0n	36.1N
Mazurkiewicz	.1	3.1	.6	.1	5.6b	4.7b	35.3B	116.9B	5.0b	7.8B
Tanyzer	32.7N	125.0N	15.0N	55.6N	3.2	3.5	2.6	3.9n	19.6N	71.4N

Analysis of Covariance

Fry	2.5	12.3N	.2	.0	.2	.6	5.8b	15.6B	3.1	11.1N
Hahn	1.9	5.5n	.3	.9	.0	.0	8.7B	32.7B	.2	.2
Hayes	17.1N	60.2N	1.3	6.8N	.2	.1	21.4N	69.6N	9.0N	31.1N
Mazurkiewicz	9.0N	28.3N	1.6	11.4N	.0	.0	23.2B	81.0B	.8	.2
Tanyzer	29.9N	176.4N	11.4N	81.2N	.4	2.0	.7	9.7N	10.9N	90.4N

NOTE: Significant treatment difference favoring I.T.A. indicated by N or n, Basal by B or b. Capital letter indicates .01 level of significance; lower case letter, .05 level.

Table 8:02

Comparison of Treatment Differences in Class Mean and Individual Analyses for the Basal vs Basal Plus Phonics Treatments

Analysis of Variance

Project	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis
Bordeaux	.2	3.4	.0	.4	.2	3.2	.3	3.2	.0	1.0
Hayes	.3	3.7	.0	1.2	2.5	6.6b	.8	10.9N	.3	3.3
Manning	12.1N	51.5N	7.6N	29.9N	11.3N	41.6N	19.8N	94.4N	14.2N	49.4N
Murphy	2.2	4.4n	5.6n	11.3N	4.4n	15.4N	1.1	.9	3.8	7.8N

Analysis of Covariance

Bordeaux	.2	1.8	.1	.0	.2	.7	1.1	2.7	.2	.1
Hayes	2.1	9.4N	.5	3.8	1.9	5.1b	2.1	16.3N	1.1	6.4n
Manning	2.5	17.7N	1.1	6.8N	2.6	17.9N	7.9N	52.2N	7.4N	22.1N
Murphy	3.7	1.6	8.3N	7.6N	6.1n	22.7N	.9	.0	4.6n	5.4n

NOTE: Significant treatment difference favoring Basal plus Phonics indicated by N or n, Basal by B or b. Capital letter indicates .01 level of significance; lower case letter, .05 level.

Table 8:03

Comparison of Treatment Differences in Class Mean and Individual Analyses for the Basal vs Language Experience Treatments

Analysis of Variance

Project	Word Reading Class Mean Analysis	Word Reading Individual Analysis	Paragraph Meaning Class Mean Analysis	Paragraph Meaning Individual Analysis	Vocabulary Class Mean Analysis	Vocabulary Individual Analysis	Spelling Class Mean Analysis	Spelling Individual Analysis	Word Study Skills Class Mean Analysis	Word Study Skills Individual Analysis
Cleland	1.4	17.4N	.8	9.4N	2.1	19.5N	1.2	1.1	.5	8.3N
Hahn	1.6	6.0n	.2	.4	.6	1.4	.5	1.2	.5	.9
Kendrick	.4	6.2	13.1B	81.9B	.0	1.5	.5	5.2b	1.3	17.2B
Stauffer	6.1n	17.9N	3.5	8.9N	1.2	.6	2.1	5.7n	.8	.5

Analysis of Covariance

Cleland	14.1N	43.2N	7.0N	22.5N	12.4N	42.5N	.1	.0	7.3N	29.1N
Hahn	1.8	5.6n	.0	.1	.8	1.0	.2	.8	.3	.5
Kendrick	.1	.0	6.3b	52.4B	1.0	.7	.7	1.1	1.1	1.8
Stauffer	5.3n	20.7N	4.5	9.6N	.9	.6	2.0	9.1N	.1	.3

NOTE: Significant treatment difference favoring Language Experience indicated by N or n, Basal by B or b. Capital letter indicates .01 level of significance; lower case letter, .05 level.

Table 8:04

Comparison of Treatment Differences in Class Mean and Individual Analyses for the Basal vs Linguistic Treatments

Analysis of Variance

Project	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis	Class Mean Analysis	Individual Analysis
Ruddell	1.0	24.9N	.0	.0	.0	.3	.5	7.1N	.1	3.1
Schneyer	1.2	2.0	1.2	4.4b	2.0	12.3B	3.3	16.0B	2.6	9.8B
Sheldon	.4	.0	4.7b	29.0B	2.5	10.0B	3.1	18.0B	2.1	6.7B
Analysis of Covariance										
Ruddell	25.4N	44.5N	.3	.3	2.5	2.9	8.4N	9.6N	6.5n	5.8n
Schneyer	.7	.6	1.0	2.8	1.1	10.6B	2.6	15.0B	2.9	7.2B
Sheldon	.0	6.8N	.1	22.4B	.2	1.8	.2	11.4B	.6	1.1

NOTE: Significant treatment difference favoring Linguistic indicated by N or n, Basal by B or b. Capital letter indicates .01 level of significance; lower case letter, .05 level.

Table 8:05

Comparison of Treatment Differences in Class Mean
and Individual Analyses for the Basal vs Phonic/Linguistic Treatments

Analysis of Variance

Project	Word Reading Class Mean Analysis	Word Reading Individual Analysis	Paragraph Meaning Class Mean Analysis	Paragraph Meaning Individual Analysis	Vocabulary Class Mean Analysis	Vocabulary Individual Analysis	Spelling Class Mean Analysis	Spelling Individual Analysis	Word Study Skills Class Mean Analysis	Word Study Skills Individual Analysis
Hayes	15.3N	64.8N	3.0	15.9N	.1	.1	5.2n	25.8N	3.2	19.9N
Tanyzer	54.2N	173.1N	18.2N	44.1N	11.9N	30.5N	14.4N	35.9N	20.4N	64.4N
Wyatt	14.7N	51.0N	1.6	3.8	.4	1.1	3.1	8.7N	1.6	6.5n
Analysis of Covariance										
Hayes	32.3N	100.7N	5.3n	27.1N	.1	2.0	8.3N	42.5N	7.5N	39.4N
Tanyzer	31.2N	142.2N	4.2n	24.0N	1.4	7.8N	2.0	17.8N	1.6	33.2N
Wyatt	17.5N	65.4N	.4	3.3	.0	.3	2.2	10.8N	.6	8.5N

NOTE: Significant treatment difference favoring Phonic/Linguistic indicated by N or n, Basal by B or b. Capital letter indicates .01 level of significance; lower case letter, .05 level.

significant differences were found in the class mean analysis, but nine differences were found to be significant in the individual analysis.

Comparisons of the two analyses for the Basal versus Linguistic treatments are reported in Table 8:04. Again the class mean analysis resulted in fewer significant treatment differences. In the analysis of variance based on class means, only one significant treatment difference was found. However, in the analysis of variance based on individuals, ten such differences existed. The analysis of covariance on class means found three significant differences, while the covariance analysis using individuals reported nine significant treatment differences.

The differences between the two sets of analyses were not as extensive for the Basal versus Phonic/Linguistic treatments. As reported in Table 8:05 the analysis of variance based on class means reported eight significant treatment differences. A similar analysis based on individuals found twelve significant treatment differences. Moreover, seven differences were found to be significant in the analysis of covariance using class means as the experimental unit. This result compares with twelve significant treatment differences for the covariance analysis based on individuals.

It is evident from the data presented in this chapter that the data analysis based on class means as the experimental unit was much more conservative than an analysis based on pupils. Furthermore, it was apparent from the design of most of the individual projects that the class mean was clearly the appropriate experimental unit. However, the data reported on the tables in this chapter clearly demonstrate that quite different findings regarding the relative effectiveness of methods would have been obtained had the individual analysis been considered the appropriate technique.

CHAPTER IX

RELATIVE INFLUENCE OF TREATMENT AND PROJECT

Despite the fact that previous chapters have shown significant project by treatment interactions and significant project effects in the analysis of method, it was decided that a combined analysis including all projects and ignoring project lines would be undertaken. The purpose of this analysis was to rank all treatments in all projects on the Word Reading and Paragraph Meaning tests when certain pupil and teacher characteristics were controlled by means of covariance. Differences among treatments in pupil readiness for reading were adjusted by using scores from the Murphy-Durrell Phonemes, Murphy-Durrell Letter Names, Metropolitan Word Meaning, Metropolitan Listening, and Pintner-Cunningham tests as covariates. Differences among treatments in teacher experience were also adjusted in the analysis of covariance. The analysis was performed on class means computed separately for boys and girls and each treatment within each project was considered a unique treatment. Three projects were not included in this analysis because of missing data.

The distribution of adjusted treatment means was studied to determine the relative position of the various instructional programs and the relative ranking of projects. Interest was focused on whether instructional method or project was the more important factor in determining the success or lack of success of a particular treatment within a particular project. If any specific treatment produced relatively superior readers regardless of the project in which it was included, this would tend to point up the importance of method. If, on the other hand, all of the treatments within any particular project were relatively successful or unsuccessful, this would tend to point up the importance of project rather than method. It should be emphasized that this analysis was not performed to evaluate the relative effectiveness of approaches to beginning reading instruction. The analysis reported in Chapter VI was considered the appropriate one for that purpose.

The covariance analyses controlling on reading readiness and teacher experience were run for boys and girls separately. This was done because of the large sex differences found to exist in achievement at the end of the first grade. Carrying out the analysis separately for boys and girls also made it possible to compare the treatment rankings for the two sexes to look for similarities or differences. Tables 9:01 and 9:02 give the results in rank order of achievement for the project treatment variables for boys and girls on

Table 9:01

Rank Order of Project Treatment on Stanford Word Reading Test*

Rank	Proj	Males Treatments	Adjusted Mean Scores	Grade Scores	Rank	Proj	Females Treatments	Adjusted Mean Scores	Grade Scores
1	A	Phonic/ Linguistic	27.5	2.2	1	A	Phonic/ Linguistic	30.2	2.5
2	A	ITA	25.7	2.0	2	A	ITA	27.0	2.2
3	C	Basal + Phonics	24.8	1.9	3	C	Basal + Phonics	26.5	2.1
4	D	Ind. Read.	23.4	1.9	4	D	Ind. Read.	24.9	1.9
5	A	Basal + Phonics	23.3	1.9	5	E	Phonic/ Linguistic	24.3	1.9
6	B	Basal Reader	23.2	1.9	6	B	Lang. Ex.	24.2	1.9
7	E	Phonic/ Linguistic	23.1	1.9	7	C	Basal + Ph. + Writing	23.7	1.9
8	C	BR	22.4	1.8	8	A	BR + Ph	23.6	1.9
9	G	ITA	22.1	1.8	9	C	BR	23.4	1.9
10	C	BR + Ph + Writing	21.9	1.8	10	G	Phonic/ Linguistic	23.3	1.9
11	G	Phonic/ Linguistic	21.7	1.8	11	O	Prog Ling	23.1	1.9
12	M	Lang. Ex.	21.2	1.8	12	G	ITA	23.0	1.9
13	O	Prog Ling	21.0	1.8	13	A	BR	22.0	1.8

* Analysis of covariance adjusted for Phonemes, Total Letters, Meaning, Listening, Intelligence, and Teachers' years of Experience

Table 9:01 (continued)

Rank	Proj	Males Treatments	Adjusted Mean Scores	Grade Scores	Rank	Proj	Females Treatments	Adjusted Mean Scores	Grade Scores
14	E	BR by Sex Group	20.6	1.7	14	M	ITA	21.7	1.8
15	B	Lang. Exp.	20.6	1.7	15	Q	ITA	21.6	1.8
16	A	BR	20.5	1.7	16	F	BR + Ph + Vis (N)	21.4	1.8
17	M	ITA	20.4	1.7	17	B	BR	21.4	1.8
18	F	BR + Ph + Vis (N)	20.2	1.7	18	M	Lang. Exp.	21.2	1.8
19	L	ITA	20.2	1.7	19	M	BR	20.7	1.7
20	Q	ITA	20.0	1.7	20	O	Prog. Ling. + Meaning	20.6	1.7
21	T	Modified Ling.	20.0	1.7	21	H	Lang. Exp.	20.6	1.7
22	H	Lang. Exp.	19.4	1.7	22	E	BR by Sex Group	20.5	1.7
23	M	BR	19.3	1.7	23	P	Readiness	20.5	1.7
24	P	Readiness	19.2	1.7	24	L	ITA	20.4	1.7
25	D	BR	19.2	1.7	25	E	BR	20.4	1.7
26	K	BR	19.0	1.7	26	K	BR	20.3	1.7
27	I	SM-TT	18.9	1.7	27	I	SM-TT	20.3	1.7
28	F	BR + Ph+ Vis (W)	18.8	1.7	28	J	Ind. Read.	20.3	1.7
29	L	BR	18.6	1.7	29	S	BR + Group Consult	20.1	1.7

Table 9:01 (continued)

Rank	Proj	Males Treatments	Adjusted Mean Scores	Grade Scores	Rank	Proj	Females Treatments	Adjusted Mean Scores	Score Scores
30	O	Prog. Ling. + Meaning	18.6	1.7	30	K	Linguistic	20.1	1.7
31	K	Linguistic	18.6	1.7	31	P	BR	20.1	1.7
32	E	BR	18.6	1.7	32	D	BR	20.1	1.7
33	R	BR + Ph	18.5	1.7	33	F	BR +Ph (W)	19.6	1.7
34	S	BR + Group Consult	18.5	1.7	34	L	Diacritical Marking	19.6	1.7
35	L	Diacritical Marking	18.4	1.7	35	T	Modified Ling.	19.6	1.7
36	F	BR (N)	18.3	1.7	36	I	BR + Remedial	19.4	1.7
37	S	BR + Indiv. Consult	18.3	1.7	37	I	HMR	19.4	1.7
38	J	Lang. Exp.	18.2	1.7	38	J	Lang. Exp.	19.4	1.7
39	J	BR	18.2	1.7	39	Q	BR	19.3	1.7
40	J	Ind. Read.	18.1	1.7	40	F	BR + Ph + Vis (W)	19.2	1.7
41	P	BR	18.1	1.7	41	J	BR	19.1	1.7
42	Q	BR	17.8	1.6	42	F(N)	BR	18.9	1.7
43	I	BR	17.7	1.6	43	S	BR + Indiv. Consult	18.9	1.7
44	R	BR +Ph + Writing	17.6	1.6	44	L	BR	18.8	1.7
45	O	BR	17.6	1.6	45	R	BR + Ph	18.7	1.7

Table 9:01 (continued)

Rank	Proj	Males Treatments	Adjusted Mean Scores	Grade Scores	Rwnk	Proj	Females Treatments	Adjusted Mean Scores	Score Scores
46	N	BR + Teacher Training	17.5	1.6	46	F	BR (W)	18.4	1.7
47	H	BR	17.5	1.6	47	R	BR + Ph + Writing	18.3	1.7
48	F	BR + Ph (W)	17.5	1.6	48	R	BR	18.3	1.7
49	F	BR + Ph (N)	17.1	1.6	49	F	BR + Ph (N)	18.2	1.7
50	N	BR	17.1	1.6	50	O	BR	18.0	1.7
51	I	HMR	17.0	1.6	51	H	BR	17.9	1.6
52	I	BR + Remedial	17.0	1.6	52	N	BR + Teacher Training	17.9	1.6
53	F	BR (W)	16.8	1.6	53	I	BR	17.8	1.6
54	T	BR	16.4	1.6	54	U	BR	17.7	1.6
55	R	BR	16.3	1.6	55	T	BR	17.4	1.6
56	T	Linguistic	16.0	1.6	56	N	BR	17.3	1.6
57	U	BR	15.8	1.5	57	T	Linguistic	17.2	1.6
58	O	BR + Meaning	15.7	1.5	58	U	Lang. Exper.	17.1	1.6
59	U	Lang. Exper.	15.6	1.5	59	G	BR	16.5	1.6
60	G	BR	15.3	1.5	60	O	BR + Meaning	15.9	1.5

Table 9:01 (continued)

Special projects not included in ranking

Proj	Males Treatments	Adjusted Mean Scores	Grade Scores	Proj	Females Treatments	Adjusted Mean Scores	Grade Scores
V	BR	21.1	1.8	W	OAE	21.9	1.8
V	Lang. Exper.	20.0	1.7	V	BR	21.4	1.8
W	OAE	19.8	1.7	W	NOA	20.8	1.7
W	OAS	19.8	1.7	V	Lang. Exper.	20.7	1.7
V	English as 2nd Language	19.1	1.7	W	OAS	20.6	1.7
W	NOA	18.0	1.7	V	English as 2nd Language	19.1	1.7
X	Aud-Vis	17.8	1.6	X	Lang. Exper.	18.9	1.7
X	Lang. Exper. + DTR	17.7	1.6	X	DTR	18.1	1.7
X	Lang. Exper. + Aud-Vis	17.2	1.6	X	Lang. Exper. + Aud-Vis	17.6	1.6
X	DTR	16.8	1.6	X	Aud-Vis	16.9	1.6
X	Easy to Read Books	16.1	1.6	X	Easy to Read Books	16.2	1.6
X	Lang. Exper.	15.7	1.5	X	Lang. Exper. + DTR	15.5	1.5
X	Lang. Exper. + Easy to Read Books	13.5	1.4	X	Lang. Exper. + Easy to Read Books	14.5	1.5

Table 9:02

Rank Order of Project-Treatment on Stanford Paragraph Meaning Test*

Rank	Proj	Males Treatments	Adjusted Mean Scores	Grade Scores	Rank	Proj	Females Treatments	Adjusted Mean Scores	Grade Scores
1	A	Phonic/ Linguistic	25.9	1.9	1	A	Phonic/ Linguistic	29.9	2.2
2	B	BR	24.8	1.9	2	B	Lang. Exper.	27.9	2.0
3	C	BR + Ph	24.0	1.9	3	C	BR + Ph	26.5	2.0
4	A	ITA	22.9	1.8	4	A	BR + Ph	26.1	2.0
5	B	Lang. Exper.	22.5	1.8	5	D	Ind. Read.	25.7	1.9
6	A	BR + Ph	22.1	1.8	6	A	ITA	25.6	1.9
7	D	Ind. Read.	22.1	1.8	7	C	BR + Ph + Writing	24.9	1.9
8	A	BR	20.5	1.7	8	A	BR	24.9	1.9
9	C	BR	20.4	1.7	9	B	BR	24.3	1.9
10	E	BR by Sex Group	20.1	1.7	10	E	Phonic/ Linguistic	22.4	1.8
11	F	BR + Ph + Vis (N)	19.8	1.7	11	E	BR by Sex Group	22.2	1.8
12	E	Phonic/ Linguistic	19.7	1.7	12	J	Ind. Read.	22.1	1.8
13	C	BR + Ph + Writing	19.5	1.7	13	I	SM + TT	21.9	1.8

* Analysis of covariance adjusted for Phonemes, Total Letters, Meaning, Listening, Intelligence, and Teachers' Years of Experience.

Table 9:02 (continued)

Rank	Proj	Males Treatments	Adjusted Mean Scores	Grade Scores	Rank	Proj	Females Treatments	Adjusted Mean Scores	Grade Scores
14	G	ITA	19.3	1.7	14	F	BR + Ph + Vis (N)	21.8	1.8
15	H	Lang. Exper.	18.9	1.7	15	E	BR	21.5	1.8
16	I	SM + TT	18.6	1.7	16	C	BR	21.4	1.8
17	F	BR (N)	18.4	1.7	17	G	ITA	21.3	1.8
18	J	BR	18.3	1.7	18	F	BR + Ph (W)	21.2	1.8
19	K	BR	18.2	1.7	19	I	HMR	21.1	1.8
20	F	BR + Ph + Vis (W)	18.1	1.7	20	F	BR + Ph (N)	21.1	1.8
21	L	BR	17.9	1.7	21	F	BR (N)	21.0	1.8
22	M	Lang. Exper.	17.8	1.7	22	D	BR	20.9	1.7
23	E	BR	17.8	1.7	23	H	Lang. Exper.	20.9	1.7
24	F	BR + Ph (N)	17.7	1.7	24	M	Lang. Exper.	20.8	1.7
25	H	BR	17.6	1.7	25	J	BR	20.7	1.7
26	F	BR (W)	17.6	1.7	26	G	Phonic/ Linguistic	20.6	1.7
27	N	BR + Teacher Training	17.6	1.7	27	M	BR	20.5	1.7
28	I	BR	17.6	1.7	28	I	BR + Remedial	20.5	1.7
29	K	Linguistic	17.5	1.7	29	J	Lang. Exper.	20.4	1.7
30	O	BR	17.5	1.7	30	F	BR (W)	20.2	1.7
31	J	Lang. Exper.	17.5	1.7	31	K	BR	20.1	1.7

Table 9:02 (continued)

Rank	Proj	Males Treatments	Adjusted Mean Scores	Grade Scores	Rank	Proj	Females Treatments	Adjusted Mean Scores	Grade Scores
32	D	BR	17.4	1.7	32	K	Linguistic	20.1	1.7
33	M	BR	17.2	1.7	33	Q	ITA	20.0	1.7
34	I	Readiness	16.9	1.6	34	M	ITA	19.7	1.7
35	P	Readiness	16.8	1.6	35	I	BR	19.7	1.7
36	G	Phonic/ Linguistic	16.8	1.6	36	O	Programed Linguistic	19.5	1.7
37	J	Ind. Read.	16.5	1.6	37	O	Prog. Ling. + Meaning	19.5	1.7
38	L	Diacritical Marking	16.5	1.6	38	S	BR + Ind. Supervis.	19.5	1.7
39	F	BR + Ph (W)	16.4	1.6	39	F	BR + Ph + Vis (W)	19.3	1.7
40	Q	ITA	16.4	1.6	40	R	BR + Ph + Writing	19.2	1.7
41	I	BR + Remedial	16.3	1.6	41	P	BR	19.2	1.7
42	R	BR + Ph + Writing	16.3	1.6	42	S	BR + Group Supervis.	19.1	1.7
43	N	BR	16.3	1.6	43	L	Diacritical Marking	19.1	1.7
44	M	ITA	16.3	1.6	44	N	BR + Teacher Training	18.8	1.7
45	L	ITA	16.3	1.6	45	P	Readiness	18.8	1.7
46	S	BR + Group Supervis.	16.2	1.6	46	L	BR	18.7	1.7

Table 9:02 (continued)

Rank	Proj	Males Treatments	Adjusted Mean Scores	Grade Scores	Rank	Proj	Females Treatments	Adjusted Mean Scores	Grade Scores
47	T	BR	16.1	1.6	47	U	BR	18.3	1.7
48	S	BR + Indiv. Supervis.	16.0	1.6	48	H	BR	18.2	1.7
49	O	Prog. Ling. + Meaning	16.0	1.6	49	R	BR + PH	18.1	1.7
50	Q	BR	15.9	1.6	50	L	ITA	18.0	1.7
51	P	BR	15.8	1.6	51	Q	BR	18.0	1.7
52	R	BR + Ph	15.7	1.6	52	M	BR	17.9	1.7
53	O	Prog. Ling.	15.5	1.6	53	T	BR	17.9	1.7
54	T	Modified Linguistic	15.3	1.6	54	R	BR	17.7	1.7
55	R	BR	14.9	1.6	55	O	BR	17.3	1.7
56	U	BR	14.8	1.6	56	T	Modified Linguistic	16.8	1.7
57	G	BR	13.2	1.6	57	G	BR	15.2	1.6
58	T	Linguistic	12.9	1.6	58	U	Lang. Exper.	14.3	1.6
59	U	Lang. Exper.	11.8	1.5	59	T	Linguistic	13.9	1.6
60	O	BR + Meaning	11.5	1.5	60	O	BR + Meaning	12.8	1.6

Table 9:02 (continued)

Special projects not included in ranking

Proj	Males Treatments	Adjusted Mean Scores	Grade Scores	Proj	Females Treatments	Adjusted Mean Scores	Grade Scores
V	BR	20.3	1.7	W	NOA	21.5	1.8
W	OAS	18.4	1.7	V	BR	21.2	1.8
V	English as 2nd Language	18.3	1.7	W	OAE	20.5	1.7
W	OAE	17.0	1.7	V	English as 2nd Language	20.5	1.7
W	NOE	16.8	1.6	W	OAS	20.3	1.7
V	Lang. Exper.	16.7	1.6	V	Lang. Exper.	19.1	1.7
X	Easy to Read Books	15.4	1.6	X	DTR	16.9	1.6
X	Lang. Exper.	14.2	1.6	X	Lang. Exper.	16.9	1.6
X	Lang. Exper. + Aud-Vis	13.8	1.6	X	Easy to Read Books	16.0	1.6
X	DTR	13.6	1.6	X	Lang. Exper. + Aud-Vis	15.8	1.6
X	Lang. Exper. + DTR	13.1	1.6	X	Lang. Exper. + DTR	14.0	1.6
X	Aud-Vis Readiness	12.9	1.6	X	Aud-Vis Readiness	13.8	1.6
X	Lang. Exper. + Easy to Read Books	10.0	1.5	X	Lang. Exper. + Easy to Read Books	12.1	1.6

the Word Reading and Paragraph Meaning subtests of the Stanford Achievement Test. The adjusted mean scores and the grade equivalents are given so that relative differences in outcomes can be interpreted. The twenty-one projects (encompassing sixty treatments) dealing with more typical school populations are listed in rank order in each table. Three projects which were involved with unusual populations are given at the bottom of each table in a separate listing. Two of these latter projects were devoted to study methods for Spanish-speaking children and one project worked only with potential disabled readers.

A study of the tables reveals that the rankings of the treatment variables are surprisingly similar for boys and girls. While, in general, the boys' adjusted scores are somewhat lower than the girls' adjusted scores, the relative order of the treatments is quite similar. The fact that the rank orders of treatments are very similar for boys and girls supports the finding that no one method appears to be particularly suited for either males or females.

It is also apparent that the project within which a method is included has more influence on its rank order than do differences in the methods themselves. For example, the ranking of the treatments for boys on the Paragraph Meaning Test reveals that project A places all four of its treatments in the first eight highest ranks. The location of project B's two method variables shows the basic reader group ranking second among the sixty and the other method, Language Experience, ranking fifth out of the sixty possible ranks. Furthermore, basic reader methods ranked second (project B), eighth and ninth (projects A and C), and also fifth-fifth, fifty-sixth, and fifty-seventh (projects R, U, and G) out of sixty. The differential effectiveness of methods apparent in these rankings is supportive of the treatment by project interactions described in earlier sections of this report. These interactions necessitated analyzing treatments within projects as described in Chapter VI. It is also apparent that the grade scores among treatments within projects are generally quite similar.

After looking at the similarity of treatment effectiveness within projects, it was decided to compare teacher, school, and community characteristics of projects with the highest overall ranking with similar characteristics of projects with the lowest overall ranking. This was done to identify characteristics associated with relatively high and low project efficiency. This after-the-fact analysis could, of course, only be considered a matter of interest and is useful primarily for providing ideas for future research.

Teacher efficiency ratings for the five highest-ranking and five lowest-ranking projects are compared in Table 9:03. This table

Table 9:03

Percentages of Teachers from High-Ranking and Low-Ranking Projects Categorized by Efficiency Rating

	Class Structure		
	Vague & Loose	Moderately Well Structured	Well Organized & Highly Structured
Upper 5 Projects (126 Classes)	6%	13%	81%*
Lower 5 Projects (181 Classes)	44%*	34%*	22%

	Class Participation		
	Low & Infrequent	One group does most don't	Moderate to High
Upper 5 Projects (126 Classes)	9%	21%	70%*
Lower 5 Projects (181 Classes)	39%*	38%*	23%

	Awareness of and Attention to Individual Pupil Needs		
	Limited	Moderate Awareness	Extensive & Effective
Upper 5 Projects (126 Classes)	10%	25%	65%*
Lower 5 Projects (181 Classes)	35%*	50%*	15%

	Overall Teacher Competence		
	Incompetent or Poor	Adequate	Good to Excellent
Upper 5 Projects (126 Classes)	7%	17%	76%*
Lower 5 Projects (181 Classes)	38%*	38%*	24%

* Significant at .01 Level

shows substantial differences in teacher ratings. The greatest difference was demonstrated in the supervisors' rating of the teachers' ability to establish a well-organized classroom. The five high-ranking projects had eighty-one per cent of the classrooms rated by supervisors as being well-organized and highly structured, whereas the projects which ranked lowest had only twenty-two per cent so rated. Seventy per cent of the teachers in the high group of projects were also highly rated in amount of class participation by the pupils as compared with twenty-three per cent for the five lowest projects. The awareness of and attention to the individual needs of the pupils also distinguished the teachers in the five top-ranking projects from teachers in the five low-ranking ones. The percentages were sixty-five and fifteen respectively. It should be noted that more than one-third of the teachers in the low-ranking projects were rated as paying limited attention to or displaying total lack of awareness of the needs of the pupils being taught. The overall teacher competence was rated good or high for seventy-six per cent of teachers in the top-ranking projects as compared with twenty-four per cent for teachers in the bottom-ranking projects. Even more important is the fact that thirty-eight per cent of the teachers in the lowest projects were shown to have poor competence ratings, while only seven per cent of the teachers in the top group of projects were so rated by their supervisors. All of the differences in teacher ratings were significant at the .01 level. It should be pointed out that these findings contradict somewhat those presented in Chapter V which report a negligible relationship between teacher effectiveness and reading achievement of pupils. This may result from the fact that correlations were computed for all projects while in this analysis only the extremes were considered.

In other teacher characteristics, no such outstanding differences were found. Nevertheless Table 9:04 reveals that teachers in projects which ranked high were found to be somewhat more experienced, had slightly more training, and presented somewhat more advanced certification than did teachers who were in the projects which ranked lowest. In fact, the difference in the per cent of teachers who held more than standard certification was significant at the .01 level.

School and classroom characteristics tended to favor somewhat the high-ranking projects. As shown in Table 9:04 classes in this group were slightly smaller, averaging 24 pupils in the spring compared with 28 pupils in the low-ranking projects. The two groups of projects did not differ substantially with respect to the availability of a school librarian. Table 9:05 presents information comparing the high-ranking and low-ranking projects on the length of the typical school day. There is a marked tendency for the low-ranking projects

Table 9:04

Selected Teacher, Classroom, and Community Characteristics of High-Ranking and Low-Ranking Projects

Teacher Characteristics

	A. Education			B. Certification			C. Experience	
	Bachelor or Lower	Bachelor to M.A.	M.A. Plus	Sub-Standard	Standard	Standard Plus	Total Years	First Grade
Upper 5 Projects (126 classes)	39%	55%	6%	12%	70%	18%*	14.4	10.8
Lower 5 Projects (181 classes)	44%	54%	2%	13%	83%	4%	12.2	8.4

	Classroom Characteristics				Community Characteristics		
	A. Class Size		B. Library Facilities Librarian				
	Fall	Spring	Yes	No	Urban	Suburban	Rural
Upper 5 Projects (126 classes)	25.4	24.2	37	63	52%	41%	7%
Lower 5 Projects (181 classes)	27.8	28.2	41	59	43%	35%	22%*

* Significant at the .01 level

Table 9:05

Length of School Day by Classrooms

Project No. of Hours	Highest Ranking Projects					Lowest Ranking Projects				
	A	B	C	D	E	R	T	O	Q	U
Less than 3.0										
3.0 - 3.5						17				3
3.6 - 4.0				1		19				19
4.1 - 4.5				6						7
4.6 - 5.0	20			14			20			19
5.1 - 5.5				2	21		1	22		6
5.6 - 6.0		23	20		9				48	
6.0 - 6.5			10							
6.6 - 7.0										
More than 7.0										

to be associated with a shorter school day. Fifty-eight classrooms from the low-ranking group were in session four hours or less each day. Only one classroom from the top-ranking projects had such a short school day. Information concerning the length of the school year is presented in Table 9:06. No clear trend is apparent here. Furthermore, since all projects agreed on a 140 day experimental period, the length of the school year would probably not influence the results of the study.

Community characteristics that were available for study showed very few distinct differences. Information about the median number of years education completed by adults in each community is presented in Table 9:07. The high-ranking and low-ranking projects do not appear to differ on this variable. Information about median income of adults in the community is presented in Table 9:08. One of the low-ranking projects had all of its classrooms in the income range $1,001 to $2,000. Except for this project very few obvious differences in median income are apparent. Table 9:09 presents the cost per pupil in average daily attendance for the various high-ranking and low-ranking projects. The low-ranking projects tend to report higher costs per pupil. Information about the type of community in which a school is located is provided in Table 9:04. A greater number of schools were found in urban and suburban areas among the high-ranking projects while a significantly greater number of schools were found in rural areas in the low-ranking projects.

Summary of Findings

1. In general, the project within which a method was studied had a greater influence on its location in rank among all the project treatments than did the specific method of instruction even when differences in pupil readiness and teacher experience were controlled by covariance. This finding supports the project by treatment interactions and significant project effects for treatments reported for other analyses in this investigation.

2. The ranking of the projects for boys and girls showed that the order of the project treatments was surprisingly similar. The boys' performance was consistently lower than the girls', but the order of ranking was so similar that no superiority of a method for boys in contrast to girls could be isolated. This finding is supportive of the lack of treatment by sex interactions found in the other analyses conducted.

3. When the five highest-ranking projects were compared with the five lowest-ranking projects, certain teacher characteristics

Table 9:06

Length of School Year by Classrooms

Projects	Highest Ranking Projects					Lowest Ranking Projects				
No. of Days	A	B	C	D	E	R	T	O	Q	U
Less than 160										
161 - 165										
166 - 170										
171 - 175				13		36				
176 - 180	20		20	10	21			22	48	54
181 - 185			10		9		14			
186 - 190							7			
191 - 195		23								
196 - 200										
More than 200										

Table 9:07

Median Number of Years' Education Completed by Adults by Classrooms

Projects	Highest Ranking Projects					Lowest Ranking Projects				
No. of Years	A	B	C	D*	E	R	T	O	Q	U
5										
6										
7										
8				1			1			
9		3						6		
10	20	8	10	2		36	2	5	48	1
11		5	20	2			5	5		11
12		3			2		12	5		29
13		4			22			1		12
14					6		1			1

* Only 5 classrooms reported.

Table 9:08

Median Income in Community by Classrooms

Project Income	Highest Ranking Projects					Lowest Ranking Projects				
	A	B	C	D	E	R	T	O	Q	U
$ 000 - $1,000										
$1,001 - $2,000						36				1
$2,001 - $3,000				2						
$3,001 - $4,000		1		6				6		4
$4,001 - $5,000	20	2		11			1			4
$5,001 - $6,000		8	10	4	9		2		48	15
$6,001 - $7,000		5	20				8	10		16
$7,001 - $8,000		3			8		2	3		13
$8,001 - $9,000					7		8	2		
More than $9,000		4			6			1		1

Table 9:09

Cost Per Pupil in Average Daily Attendance by Classrooms

Project Cost	Highest Ranking Projects					Lowest Ranking Projects				
	A	B	C	D	E	R	T	O	Q	U
Less than $99										
$100 - $199										
$200 - $299				5						1
$300 - $399		23	12	17						24
$400 - $499	20		18		24		7	22		28
$500 - $599					6		7			1
$600 - $699					1	36	7		48	
$700 - $799										
$800 - $899										
More than $900										

were found to be significantly different. Supervisor ratings of class structure, class participation, awareness of and attention to individual needs, and overall competence of teachers in the high-ranking projects were all significantly higher than were those of the teachers in the low-ranking projects. The top-ranking projects had a significantly greater per cent of teachers who held more than a standard teaching certificate than did the bottom-ranked projects. Teachers from favored projects also had slightly more advanced training and somewhat more total and first-grade experience. These findings are somewhat different than those reported in the correlation chapter of this report, where only slight but positive relationships between teacher characteristics and success of pupils were reported.

4. The projects which ranked highest had, on the average, a somewhat longer school day than did the projects which ranked lowest. Furthermore, the difference in class size, in the spring, of these two groups of projects was 24.2 and 28.2, favoring the higher-ranked projects.

5. No marked difference was found in the community characteristics of these two groups of projects except that the bottom-ranked projects had significantly (at the one per cent level) more classrooms in rural situations than did the top-ranked projects.

CHAPTER X

SUMMARY AND CONCLUSIONS

This study was designed to obtain information relevant to three basic questions. (1) To what extent are various pupil, teacher, class, school, and community characteristics related to pupil achievement in first grade reading and spelling? (2) Which of the many approaches to initial reading instruction produces superior reading and spelling achievement at the end of the first grade? (3) Is any program uniquely effective or ineffective for pupils with high or low readiness for reading? The method in which the data were analyzed also made it possible to compare the results of using the class and the individual pupil as the experimental unit.

Analysis of Relationships

Summary of Findings

The findings of the investigation relevant to question one can be summarized as follows:

(1) The single best predictor of first grade reading success among the premeasures used in this investigation was the Murphy-Durrell Letter Names Test. This test correlated between .52 and .60 with both the Stanford Word Reading and Stanford Paragraph Meaning subtests for each of the six treatments used in the investigation.

(2) The Murphy-Durrell Phonemes and the Pintner-Cunningham Primary Test also correlated relatively well with the criterion measures. Each of these tests correlated .40 or greater with both the Word Reading and Paragraph Meaning subtests for each of the six treatments.

(3) The other readiness tests used in this study correlated positively with the reading measures but to a smaller extent. Correlations with reading were usually .40 or less for these premeasures.

(4) For the subtests with the best predictive ability (Letter Names, Phonemes, Pintner-Cunningham) there was little evidence of differential prediction of reading success in the programs used in this study. Correlations between these premeasures and reading were very similar for pupils in the Basal, I.T.A., Basal plus Phonics, Language Experience, Linguistic, and Phonic/Linguistic groups.

(5) A correlation coefficient of .86 was found between the Fry Test of Phonetically Regular Words and the Gates Word Pronunciation Test for the Basal treatment. Each of these tests was administered individually to a sample but they differed in the degree to which words were controlled on the basis of sound-symbol regularity. The Fry Test consisted of words with high regularity while the Gates

Test consisted of words selected on the basis of frequency of usage with no control of sound-symbol relationship. Furthermore, the Word Reading subtest from the group-administered Stanford Achievement Test correlated .72 with the Fry Word List and .78 with the Gates Word Pronunciation Test for the Basal group. Correlations for the treatments other than Basal were very similar.

(6) For the range of class sizes reported in this study there was a negligible correlation between class size and reading achievement. Furthermore, in this study pupil absence and child age were negatively related to the various reading measures. However, these correlations were also negligible with the largest of them being -.22.

(7) The total experience of teachers correlated between .24 and .34 with the five Stanford Achievement measures. Teacher experience in the first grade correlated between .20 and .30 with the same measures. A rating of general overall teacher efficiency correlated between .10 and .22 with the five achievement measures.

(8) The accuracy score on the Gilmore Oral Reading Test correlated between .81 and .90 with the Gates Word Pronunciation Test for the various reading programs.

(9) The Stanford Word Reading test, a measure of word recognition, and the Stanford Paragraph Meaning test, a measure of comprehension, correlated between .71 and .83 for the various programs.

Conclusions

From the correlation relationships found in the study, the following conclusions can be drawn:

(1) There are many pupil capabilities related to the success children have in beginning reading. The results of this study would indicate that a fair amount of the variation in pupil success can be accounted for by the attributes brought to the learning situation. Such pupil capabilities as auditory and visual discrimination, pre-first grade familiarity with print and intelligence are all substantially related to success in learning to read under whatever approach to initial instruction is used.

(2) Among those attributes measured in this study, knowledge of letter names and the ability to discriminate between word sounds appear to have the greatest relationship to reading success under each of the various methods of instruction employed. The knowledge of letter names gained prior to initial instruction alone would account for approximately twenty-five to thirty-six per cent of the variation in reading ability found at the end of the year under the various methods of instruction used in this study. It is also interesting to note that the predictive validity of a single subtest such as the Letter Names subtest is of approximately the same magnitude as the predictive validity of an entire reading readiness battery. Therefore, it is probably not necessary to give a complete readiness test if prediction of reading success is the only objective.

(3) Test constructors should note the high positive relationship between the length of the various readiness tests, their variability, and their predictive validity. The length of the tests alone might account for the differential predictive power found among the premeasures used in this study.

(4) Although there were some differences in the magnitude of correlations between prereading pupil characteristics and success in reading under the various methods, there was enough uniformity in these relationships to conclude that no one method of instruction would uniquely overcome the limitations imposed on children by deficiencies in any characteristic measured in this study. Furthermore, no approach used in this study was found to be uniquely effective for pupils who scored well on any of the premeasures.

(5) There were some differences in the magnitude of the correlations between the pretests and the Stanford Paragraph Meaning and Stanford Word Reading tests. However, there was enough uniformity in these relationships to conclude that no one attribute measured by the premeasures would predispose the child to having specific difficulty in word recognition as opposed to comprehension or vice versa. In this respect is should be noted that the correlation between the two reading tests was so high that little differential prediction could be expected.

(6) Although no relationship between class size and success in first-grade reading was found in this study, the conclusion that class size makes no difference would be unwarranted. No very large or very small classes were represented in the study. It can be concluded, however, that the addition or subtraction of a pupil or two would not seriously influence successful teaching.

(7) The relationship between pupil age and reading success indicates that the younger child did somewhat better than did his older classmate. The correlation was so small, however, that differences in age of these pupils accounted for little if any of the differences in reading success. Furthermore, the negative relationship between achievement and chronological age may be a result of selective admission procedures whereby unusually mature children are admitted to school at a young age.

(8) A child who has the ability to read phonetically regular words also has skill in reading words of high utility even though these latter words may be highly irregular. Similarly, children who can read words orally in individual test situations also are relatively successful in reading words silently in a group testing situation. Therefore, in most instances it is probably not necessary to employ both individual and group measures of word recognition. Similarly, it is probably not necessary to use different tests to evaluate the reading ability of pupils who learn to read by means of linguistic programs (where words are controlled on the basis of sound-symbol regularity) from those used to test reading ability of pupils from basal reading programs.

(9) The high inter-correlations found in the variety of reading measures used in this study indicate that reading at the end of the first grade is largely a unitary accomplishment depending upon the ability to recognize words accurately and to associate meaning with those words. An alternative conclusion, of course, is that it is difficult to develop tests which differentiate abilities at this early level even if they exist.

(10) From the correlation studies, the evidence is that teacher experience and efficiency ratings are only slightly related to pupil success. While there is ample evidence that class differences influence reading success, the estimates of teacher efficiency used in this study did not explain these differences.

Analysis of Methodology

The relative effectiveness of the various instructional programs utilized in this investigation was evaluated in two different ways. The major technique was to compare various non-basal programs with basal programs used in the same project. The newer experimental programs were thereby evaluated by comparing their relative effectiveness with that of the well-known basal reading programs. This analysis was considered the appropriate one to be used in the study. However, an analysis was also conducted whereby each treatment within each project was compared with all of the other treatments in all of the other projects. In this latter analysis, pupil differences in readiness among the various treatments and projects were adjusted by means of covariance as were teacher differences in experience. Because of tremendous project differences in achievement even after teacher and pupil characteristics had been controlled statistically, this method of analysis was presented for informational purposes only. However, each of these two analyses presented a number of interesting findings.

Summary of Findings from Basal versus Non-Basal Comparisons

The findings of the Basal versus I.T.A., Basal versus Basal plus Phonics, Basal versus Language Experience, Basal versus Linguistic, and Basal versus Phonic/Linguistic treatment comparisons can be summarized as follows.

Summary of Basal versus I.T.A. comparisons. The I.T.A. and Basal approaches were of approximately equal effectiveness in terms of pupils' achievement on the Paragraph Meaning test. However, the I.T.A. treatment produced superior word recognition abilities as measured by the Word Reading subtest of the Stanford and the Fry and Gates word lists. Evidence concerning the spelling ability of pupils in the two groups was inconclusive. The Basal subjects were superior in spelling ability in three projects but the I.T.A. subjects were superior in a fourth project. No differences were found between treatments in reading accuracy and rate as measured by the Gilmore Oral Reading Test.

Summary of Basal versus Basal plus Phonics comparison. In general, Basal programs accompanied by supplementary phonics materials produced significantly greater achievement in reading than did Basal materials alone. This superiority was especially pronounced in the across-projects analysis of mean performance on the Stanford Achievement tests and the Fry and Gates word recognition tests. Practically all differences on these measures favored the Basal plus Phonics group even though some of the differences failed to reach statistical significance. No differences in rate or accuracy of oral reading were found between the two treatments.

Summary of Basal versus Language Experience comparisons. Relatively few significant differences were found between the Language Experience and Basal approaches. Those significant differences which were found to exist generally favored the Language Experience approach. However, these sporadic differences were often not of much practical significance in terms of actual reading achievement.

Summary of Basal versus Linguistic comparison. The most common finding for the Linguistic versus Basal comparison in the various projects was that of no difference between treatments. However, the Linguistic group tended to out-perform the Basal group on tests of word recognition while the Basal group exhibited somewhat greater speed and accuracy in reading. No differences in comprehension were ascertained.

Summary of Basal versus Phonic/Linguistic comparison. The Phonic/Linguistic program was superior to the Basal program utilized in the projects of this investigation. The Phonic/Linguistic program produced pupils with superior word reading, paragraph meaning, spelling, and word study skills. Phonic/Linguistic pupils were also superior on the Fry Test of Phonetically Regular Words and the Gates Word Pronunciation Test. No significant differences were found in rate or accuracy of oral reading.

General findings. In general, there was less difference in variability among treatments than in mean achievement among treatments. Standard deviations on each of the outcome measures were very similar for the Basal, I.T.A., Basal plus Phonics, Language Experience, Linguistic, and Phonic/Linguistic pupils. Furthermore, the interclass variation within the various treatments was very similar except for the Language Experience approach. Wide differences in mean achievement of classrooms were found for all of the programs. However, the range between the highest and lowest average class achievement in the Language Experience approach generally was greater than the range for the Basal classrooms in the same project.

Another general finding was that girls tended to have a greater degree of readiness for reading at the beginning of first grade and tended to read at a higher level of reading at the end of the first grade. In most cases differences in reading achievement which favored girls at the end of the year disappeared when criterion scores were adjusted for differences in prereading ability. A related finding in this investigation was that none of the treatments had a unique effect on the achievement of boys and girls. That is, no significant sex by treatment interactions were found to exist. On the average, girls tended to be better readers in all programs.

One of the most striking findings was the persistence of project differences in reading achievement even after adjustments were made statistically for differences in pupil readiness for reading. Evidentally reading achievement is influenced by factors peculiar to school systems over and above differences in prereading capabilities of pupils.

One other common finding was that statistically significant treatment by project interactions were found in most of the Basal versus Non-Basal comparisons. In general, treatments did not operate in the same fashion across projects.

Conclusions

The findings of the analysis of methodology led to the following conclusions:
(1) Word study skills must be emphasized and taught systematically regardless of what approach to initial reading instruction is utilized.
(2) Combinations of programs, such as a basal program with supplementary phonics materials, often are superior to single approaches. Furthermore, the success of such methods as the Language Experience approach indicates that the addition of language experiences to any kind of reading program can be expected to make a contribution.
(3) Innovative programs such as Linguistic readers are especially effective in the word recognition area. The superiority of these programs to Basal programs is not as evident in the area of comprehension. It is likely that Basal programs should develop a more intensive word study skills element, while programs which put major emphasis on word recognition should increase attention paid to other reading skills.
(4) It is necessary for teachers to make differential expectations concerning mean achievement of boys and girls. On the average, boys

cannot be expected to achieve at the same level as girls, at least with the materials, methods, and teachers involved in this investigation. A probable explanation from the data of this study is that boys are less ready to read when they enter school.

(5) Boys and girls do not profit uniquely from any of the programs utilized in this investigation. On the average, girls' achievement is superior to boys' no matter what approach to beginning reading is used.

(6) Reading programs are not equally effective in all situations. Evidentally, factors other than method, within a particular learning situation influence pupil success in reading.

(7) Reading achievement is related to characteristics in addition to those investigated in this study. Pupils in certain school systems become better readers than pupils in other school systems even when pupil characteristics are controlled statistically. Furthermore, these differences in achievement from project to project do not seem to be directly related to the class, school, teacher, and community characteristics appraised in this study.

(8) Pupils taught to read by means of a transitional alphabet such as I.T.A. may experience greater difficulty making the transition to traditional orthography in spelling than they do in reading. Longitudinal information is necessary to study this problem.

(9) Future research might well center on teacher and learning situation characteristics rather than method and materials. The tremendous range among classrooms within any method points out the importance of elements in the learning situation over and above the methods employed. To improve reading instruction it is necessary to train better teachers of reading rather than to expect a panacea in the form of materials.

(10) Children learn to read by a variety of materials and methods. Pupils become successful readers in such vastly different programs as the Language Experience approach with its relative lack of structure and vocabulary control and the various Linguistic programs with their relatively high degree of structure and vocabulary control. Furthermore, pupils experienced difficulty in each of the programs utilized. No one approach is so distinctly better in all situations and respects than the others that it should be considered the one best method and the one to be used exclusively.

(11) The expectation of pupil accomplishment in initial reading instruction probably should be raised. Programs which introduced words at a more rapid pace tended to produce pupils with superior word recognition abilities at the end of the first grade. Children today tend to be better equipped for reading instruction when they enter first grade than they were some years ago and are probably prepared to learn more words and develop more mature study skills than are currently expected of them in many programs.

(12) Indications are that the initial reading vocabulary should be selected with a greater balance between phonetically regular words and high utility words. It is likely that introducing words solely on the basis of frequency of use presents an unusually complex decoding task for the beginning reader. On the other hand, it appears that presenting only phonetically regular words makes it very difficult to write meaningful material.
(13) A writing component is likely to be an effective addition to a primary reading program. In the first place, the Language Experience approach which involves considerable written expression, was an effective program of instruction. In addition, programs such as I.T.A. and Phonic/Linguistic, both of which were relatively effective, encourage pupils to write symbols as they learn to recognize them and to associate them with sounds. This appears helpful to the pupil in learning sound-symbol relationships. Furthermore, it is likely that writing such common but irregular words as "the" helps the child to commit them to his sight vocabulary.
(14) It is impossible to assess the relative effectiveness of programs unless they are used in the same project. Project differences are so great even when pupil readiness for reading is controlled that a program utilized in a favored project would demonstrate a distinct advantage over one used in a less favored project regardless of the effectiveness of the program.
(15) The relative success of the non-basal programs compared to the basal programs indicates that reading instruction can be improved. It is likely that improvement would result from adopting certain elements from each of the approaches used in this study. The first step would be to determine the elements within the various approaches most important to the success of that program. For example, the I.T.A. and Phonic/Linguistic programs, both of which were relatively effective, have in common a vocabulary controlled on sound-symbol regularity, introduction of a relatively large reading vocabulary, and emphasis on writing symbols as a means of learning them. It would be interesting to know which of these elements, if any, is primarily responsible for the effectiveness of the program. Perhaps an instructional program which incorporated the most important elements of all of the approaches used in the study would be a more effective method of teaching than any currently in use.

Summary of the Findings of the Combined Analysis

The covariance analysis which considered each treatment within each project to be unique reported the following results:
(1) The project within which a method was studied had a greater influence on its location in rank among all the project treatments than did the specific method of instruction. This project influence existed even when differences in pupil readiness and teacher experience were adjusted by means of covariance.

(2) A comparison of the five most successful projects in terms of pupil achievement with the five least successful projects revealed certain significant differences between the two groups. For example, supervisor ratings of class structure, class participation, awareness of and attention to individual needs, and overall competence of the teachers of the most successful projects were all significantly higher than were those for the teachers of the least successful projects. Furthermore, the most successful projects had a significantly greater per cent of teachers who had more than a standard teaching certificate than did those in the bottom-ranked projects.
(3) The projects which ranked highest had, on the average, a longer school day than did the projects which ranked lowest. The smaller average class size (28.2 to 24.2) also favored the more successful projects.
(4) No marked differences were found in community characteristics of the two extreme groups of projects except that the least successful projects had significantly more classrooms in rural areas.
(5) The ranking of the treatments within projects for boys and girls showed that the order of the treatments was surprisingly similar. The boys' performance tended to be lower than the girls' but the order was quite uniform.

Conclusions

From the above findings, the following conclusions may be drawn:
(1) The entire instructional setting is involved in the effectiveness of reading instruction and differences in method alone do not alter, to any great extent, the reading growth of the children. There is apparently no methodological panacea represented among the methods herein explored.
(2) The learning situations and methods, herein explored, that are conducive to effective learning for girls were also the most suitable for the boys. The solution to the boys' problem in establishing reading capability, in the early years, needs further exploration.
(3) Teachers are an extremely important element in the learning situation. Teachers should be trained to conduct well-organized and systematic reading programs, to encourage class participation by all the pupils, and to be aware of and adjust to the individual needs of the pupils within their classes.

Analysis of Treatment by Readiness Level

In this section of the analysis pupils were blocked in turn according to levels of ability as measured by an intelligence test, an auditory discrimination test, and a test of letter knowledge. Interactions between treatments and each of these readiness measures were examined to determine whether or not there was a differential treatment effect for pupils of varying levels of readiness.

Summary of Findings

For four of the five Basal versus non-Basal comparisons there was no evidence of differential treatment effects for various levels of intelligence, auditory discrimination or letter knowledge. Very few, if any, significant treatment by intelligence, treatment by auditory discrimination, or treatment by letter knowledge interaction effects were found to be significant. This finding of no interaction between treatment and readiness characteristics generally held true for the Basal versus I.T.A., Basal versus Basal plus Phonics, Basal versus Linguistic, and Basal versus Phonic/Linguistic comparisons.

A somewhat different situation existed for the Basal versus Language Experience comparison. For this treatment comparison a number of treatment by intelligence, treatment by auditory discrimination, and treatment by letter knowledge interactions were found to be significant. The interactions resulted from the fact that the least mature pupils achieved better in a Basal program than in a Language Experience approach, while more capable students with respect to these skills profited more from a Language Experience approach. This finding was tempered by the fact, however, that the low readiness Basal pupils were generally superior to the low readiness Language Experience pupils on premeasures other than the one used for blocking. Therefore, it was not surprising to find that they were superior in achievement. On the other hand, the high readiness Basal pupils were inferior to the high readiness Language Experience pupils on premeasures other than those used for blocking. It is possible that the treatment by readiness interaction on the achievement measures was primarily a result of similar interaction on the premeasures.

Conclusions

With respect to the I.T.A. versus Basal, Basal plus Phonics versus Basal, Linguistic versus Basal, and Phonic/Linguistic versus Basal treatment comparisons, the following conclusions can be drawn:
(1) Programs which were superior in the various Basal versus non-Basal comparisons tended to be superior across all levels of intelligence. There was no indication that approaches operated differentially for pupils with high or low intelligence.
(2) Programs which were superior in the various Basal versus non-Basal comparisons tended to be superior across all levels of auditory discrimination ability. There was no indication that approaches operated differentially for pupils with high and low auditory discrimination.
(3) Programs which were superior in the various Basal versus non-Basal comparisons tended to be superior across all levels of pre-instructional letter knowledge. There was no indication that approaches operated differentially for pupils with high or low ability to recognize letters.

(4) There is no basis for using readiness test information to place pupils differentially in a Basal program or any other instructional program utilized in this investigation. A teacher who is successful with a given instructional program will probably be successful with that approach for pupils of varying degrees of readiness and capability.

Conclusions from the Basal versus Language Experience comparison are less clear-cut. There is some indication that low readiness pupils are more successful in a Basal program while high readiness pupils profit more from a Language Experience program. However, this trend must be studied further in light of the fact that the finding in this investigation on which the conclusion is based may have resulted from sampling problems.

Comparison of Class Mean and Individual Analyses

The procedures of analysis in this study made possible a comparison of the results which were obtained using first the class and then the individual pupil as the experimental variable. The major section of the analysis used the class as the experimental variable because this seemed to be the appropriate procedure. However, the analysis which dealt with blocking on intelligence, auditory discrimination, and letter knowledge used the individual pupils as the experimental unit. Treatment effects were analyzed in both situations and were based on exactly the same individuals.

Summary of Findings

The analysis based on individual pupils resulted in many more significant treatment differences. This general finding was true for both the analysis of variance and analysis of covariance reported for each Basal versus non-Basal treatment comparison. In many cases the difference in the number of treatment effects found to be significant was quite extensive.

Conclusions

The decision about whether to use classes or individuals as the experimental variable in educational research is crucial because it may well affect the conclusions drawn from an investigation. Typical sampling procedures, in which a treatment is assigned to a class, dictate that the class be the experimental unit. Yet, often in these situations data are analyzed on individuals rather than on classes. Moreover, even if children are randomly assigned to a class, there is still a great deal of logic behind using the class as the experimental variable. Children within a class are exposed not only to the same treatment, but also to the same teacher, same class size, same class interruptions, same construction noises, and same epidemic of influenza. To treat individuals as if the class did not exist seems a questionable procedure.

Suggestions for Future Cooperative Research

The director and associate director of the Coordinating Center for the Cooperative Research Study in First-Grade Reading Instruction believe that the study has demonstrated the feasibility of cooperative research. There were many positive aspects of the program which could not be subjected to statistical analysis. This, of course, is true of all research but the nature of this program probably made it more beneficial to more people. In the first place, the directors and teachers of the various projects who were interviewed by the Coordinating Center staff were unanimous in their opinion that the reading programs in the participating schools profited by involvement in the study. It is also apparent from observations of classrooms involved in the project and from visiting with the various project staffs that the teachers who participated in the cooperative study also gained much from the experience. The research program proved to be a valuable technique for the in-service training of teachers. The teachers attended regular meetings with other experimental teachers and members of the project staff and became acquainted with new materials and new teaching techniques. Their teaching of reading will undoubtedly be enhanced for many years to come and the experimental attitude fostered in the research should encourage continued growth in the profession.

The project directors, their staffs, and the staff of the Coordinating Center also grew professionally as a result of the study. The sharing of ideas involved in implementing a cooperative venture of this nature was a stimulating and rewarding experience. Each of the participants sharpened his views on research design and on problems of initiating and evaluating reading instruction. Furthermore, everyone involved in the study gained additional experience in translating educational questions into testable hypotheses and in exploring further the role of the computer in educational research.

As a result of experience gained in conducting the coordinating center for this research study and as an outgrowth of discussions with the independent project directors, the following suggestions for future cooperative research endeavors are listed for consideration:
(1) A coordinating center is necessary in cooperative research and should be selected prior to the awarding of support to individual projects.
(2) Individual projects should be selected on the basis of the director's willingness to work on a joint enterprise designed to study in depth a specific educational problem.

(3) The first meeting between directors of cooperating centers and the coordinating center should be held far enough in advance of the actual study that definite and uniform plans of research design can be formulated. At this time guidelines for common experimental procedures should be established and the common specific hypotheses to be studied should be formulated.
(4) In methodological studies, at least, all treatments should be replicated in all projects. This consideration is essential in light of the tremendous project differences and project by treatment interactions found in this study.
(5) Over and above the study of common hypotheses, individual project directors should be encouraged to study unique aspects of the problem being studied.
(6) Each of the experimental variables should be carefully defined, and in methodological studies provisions should be made for monitoring classrooms to determine how carefully teachers are following the specific approach and agreed-upon procedures.
(7) Relevant information about teacher, school, and community characteristics should be collected and organized in such a way that this information could be utilized in a covariance analysis if it was desirable to do so.
(8) Consideration should be given to constructing instruments for evaluation. In some cases currently available tests and other evaluative devices are inadequate for measuring the outcomes desired. Here again selection of the coordinating center and the projects far in advance of the beginning of the experiment would be very helpful.
(9) Much time and duplication of effort could be avoided by analyzing all data at the coordinating center. Programs could thereby be written specifically for the computer in operation at the coordinating center and duplicate programming efforts could be avoided.
(10) Deadlines for submitting data to the coordinating center should be closely followed in order that the findings from the study could be made available at the earliest possible date. In a cooperative study tardiness on the part of one participating project director affects the entire study.

The cooperative research program in first grade reading instruction has demonstrated that independent researchers can cooperate in a study of this nature. The staff of the Coordinating Center feels that cooperative research programs have potential for improving the quality of educational research.

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APPENDIX A

DESCRIPTIVE DATA BY PROJECT AND TREATMENT

PROJ			C.A.		D.Ph.		D.L.N.		D.L.R.		D.Pat.		T.Id.F.		Met. Word		Met. List.	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
BORDEAUX	Basal - Scott-Foresman	N	114	117	114	118	114	118	114	118	114	118	114	118	114	118	114	118
		$\bar{X}$	78.6	78.8	13.9	14.3	25.9	26.8	6.5	8.0	9.1	9.7	10.3	11.3	6.3	6.1	8.1	8.6
	Intensified Phonics	N	115	107	115	108	115	108	115	108	115	108	115	108	115	108	115	108
		$\bar{X}$	78.7	77.9	16.5	14.6	27.3	28.2	6.8	6.7	9.9	8.9	14.3	12.3	7.0	6.4	8.6	8.2
	Phonics with Sensory Experience	N	114	109	114	109	114	109	114	109	114	109	114	109	114	109	114	109
		$\bar{X}$	78.7	77.8	14.9	18.6	26.0	30.9	6.1	7.6	7.6	9.1	10.8	13.1	6.7	6.7	8.8	8.7
CHALL		N	88	100	88	100	-	-	88	100	88	100	88	100	88	100	88	100
		$\bar{X}$	75.2	75.6	6.5	7.8	-	-	8.2	8.9	4.7	5.0	9.8	10.1	5.9	5.8	7.4	7.8
CLELAND	Coordinated Language Experience	N	131	156	131	156	131	156	131	156	131	156	131	156	131	156	131	156
		$\bar{X}$	74.3	73.9	18.3	22.7	31.0	36.3	9.8	10.4	22.5	21.4	15.5	16.7	8.3	8.3	8.7	9.2
	Basal - Scott-Foresman	N	192	184	192	184	192	184	192	184	192	184	192	184	192	184	192	184
		$\bar{X}$	73.5	72.7	23.6	25.8	34.0	36.2	9.9	10.0	21.2	21.9	17.7	21.1	8.9	8.5	9.4	9.2
FRY	Diacritical Marking System	N	70	62	70	62	70	62	70	62	70	62	70	62	70	62	70	62
		$\bar{X}$	77.4	76.7	18.0	22.5	25.6	29.4	7.1	7.9	5.4	6.4	14.6	16.1	9.0	9.2	9.1	9.7
	Initial Teaching Alphabet	N	71	63	71	63	71	63	71	63	71	63	71	63	71	63	71	63
		$\bar{X}$	76.3	76.3	21.0	24.0	27.0	32.1	6.5	8.0	5.1	7.2	15.0	15.0	9.0	8.9	8.8	8.9
	Basal - Sheldon Readers	N	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
		$\bar{X}$	76.9	76.7	20.1	26.6	29.9	37.9	7.5	8.9	6.0	8.5	14.8	17.4	8.9	9.7	9.2	10.2

PROJ			C.A.		D.Ph.		D.L.N.		D.L.R.		D.Pat.		T.Id.F.		Met. Word		Met. List.	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HAHN	Initial Teaching Alphabet	N	132	123	132	123	132	123	132	123	132	123	132	123	132	123	132	123
		$\bar{X}$	76.2	76.2	28.8	29.4	34.4	36.6	8.8	9.4	10.7	11.5	19.0	20.8	10.3	9.7	9.5	10.1
	Language Experience	N	135	134	135	134	135	134	135	134	135	134	135	134	135	134	135	134
		$\bar{X}$	75.4	75.6	25.3	29.5	33.6	38.5	8.6	9.1	10.4	10.2	17.0	19.2	10.3	10.0	9.0	9.5
	Basal	N	148	128	148	128	148	128	148	128	148	128	148	128	148	128	148	128
		$\bar{X}$	76.4	76.1	24.9	28.1	33.4	37.2	8.1	8.8	10.0	9.6	17.5	20.1	9.9	9.7	9.4	9.6
HARRIS	Language Experience	N	165	163	167	172	131	139	165	159	168	159	160	159	175	174	175	174
		$\bar{X}$	79.7	79.8	8.0	9.2	17.1	20.7	6.8	7.1	2.5	3.3	4.9	6.2	5.5	5.2	6.5	7.0
	Language Experience + Audio-Visual	N	158	168	149	147	113	115	157	157	157	159	169	168	168	168	168	168
		$\bar{X}$	80.1	79.2	11.1	10.2	21.2	19.6	9.0	8.5	3.2	2.5	5.5	5.3	5.4	4.8	6.9	6.5
	Skills Centered Basal	N	164	157	117	115	102	110	153	152	157	154	168	158	165	157	165	158
		$\bar{X}$	80.0	79.1	6.9	10.3	17.4	20.6	7.3	8.0	2.6	2.8	4.9	5.9	5.1	5.0	6.5	6.8
	Skills Centered Basal with Phonovisual Word Attack	N	161	176	155	168	114	123	148	172	143	164	160	176	159	173	159	173
		$\bar{X}$	80.0	79.5	10.6	11.5	20.7	21.3	9.4	8.5	2.1	2.3	4.8	4.7	5.2	5.1	7.0	6.9
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																

PROJ			C.A.		D.Ph.		D.L.N.		D.L.R.		D.Pat.		T.Id.F.		Met. Word		Met. List.	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HAYES	Basal - Scott-Foresman	N	45	42	45	42	45	42	45	42	45	42	45	42	45	42	45	42
		X̄	75.6	75.6	14.2	15.2	22.3	26.8	6.8	7.5	11.0	11.9	12.3	15.1	7.4	7.3	7.7	8.1
	Lippincott Basal with Filmstrips	N	53	46	53	46	53	46	53	46	53	46	53	46	53	46	53	46
		X̄	75.0	75.2	12.3	17.0	17.6	23.4	6.9	8.8	5.7	5.6	9.7	11.1	6.5	6.2	7.1	8.0
	Scott-Foresman with Phonics and Word Power	N	50	53	50	53	50	53	50	53	50	53	50	53	50	53	50	53
		X̄	74.7	75.3	11.5	16.3	18.4	21.3	6.0	8.1	6.0	5.2	8.9	11.8	6.6	6.4	7.6	7.9
	Initial Teaching Alphabet	N	44	52	44	52	44	52	44	52	44	52	44	52	44	52	44	52
		X̄	76.5	75.4	18.2	21.3	25.1	30.1	8.0	7.3	5.7	4.9	11.4	12.7	8.3	8.1	9.2	8.4
HEILMAN	In-Service Teaching Program	N	157	144	157	144	157	144	157	144	-	-	-	-	157	144	157	144
		X̄	75.0	74.9	22.5	24.9	31.9	35.7	9.9	10.4	-	-	-	-	9.2	8.3	9.3	9.6
	Control	N	141	137	141	137	141	137	141	137	-	-	-	-	141	137	144	131
		X̄	74.4	73.9	20.4	24.8	30.1	34.7	9.8	10.4	-	-	-	-	8.9	8.0	9.0	9.2
HORN	Oral - Aural English	N	85	79	85	79	85	79	-	-	85	79	85	79	85	79	85	79
		X̄	77.4	77.6	4.0	5.0	5.1	7.2	-	-	2.8	3.0	2.4	3.2	2.5	2.6	3.3	3.8
	Oral - Aural Spanish	N	96	73	96	73	96	73	-	-	96	73	96	73	96	73	96	73
		X̄	78.8	77.8	5.7	6.9	8.4	8.8	-	-	4.1	4.3	4.2	4.0	3.1	3.2	4.0	3.9
	No Oral - Aural Spanish	N	85	84	85	84	85	84	-	-	85	84	85	84	85	84	85	84
		X̄	79.6	78.7	8.1	7.6	11.4	10.5	-	-	4.3	4.5	4.3	5.3	3.2	3.4	4.4	4.7

PROJ			C.A.		D.Ph.		D.L.N.		D.L.R.		D.Pat.		T.Id.F		Met. Word		Met. List.	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
KENDRICK	Language Experience	N	332	305	332	305	332	305	332	305	332	305	332	305	332	305	332	305
		$\bar{X}$	76.2	76.5	25.3	28.3	35.8	37.3	10.2	11.4	17.8	17.4	14.5	17.2	9.5	9.1	9.8	9.7
	Basal - Ginn	N	354	298	354	298	354	298	354	298	354	298	354	298	354	298	354	298
		$\bar{X}$	76.9	76.2	33.1	35.7	32.6	34.9	9.5	10.3	18.4	18.9	16.5	18.7	8.7	8.2	9.3	9.5
MACDONALD	Basal - Ability Grouping	N	102	88	-	-	-	-	-	-	-	-	-	-	99	85	99	85
		$\bar{X}$	76.6	76.9	-	-	-	-	-	-	-	-	-	-	9.4	9.2	10.0	9.5
	Basal - One-to-One	N	81	83	-	-	-	-	-	-	-	-	-	-	77	83	77	83
		$\bar{X}$	76.4	76.1	-	-	-	-	-	-	-	-	-	-	9.8	9.4	10.4	10.0
MANNING	Basal - Ginn	N	158	152	158	152	158	152	158	152	158	152	158	152	158	152	158	152
		$\bar{X}$	80.0	79.8	23.4	27.2	27.0	30.4	9.0	9.7	17.1	17.8	14.2	15.2	7.0	6.8	9.7	9.4
	Visual & Auditory + Ginn	N	134	126	134	126	134	126	134	126	134	126	134	126	134	126	134	126
		$\bar{X}$	78.1	77.4	27.4	30.1	35.6	38.8	10.3	10.9	18.4	18.5	14.1	15.3	8.1	7.5	9.4	9.2
	Written Language + Visual-Auditory + Ginn	N	128	130	128	130	128	130	128	130	128	130	128	130	128	130	128	130
		$\bar{X}$	77.6	77.0	29.5	32.0	40.2	40.8	10.9	10.9	19.4	19.1	14.3	15.9	8.8	7.9	9.7	9.5
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																

PROJ			C.A.		D.Ph.		D.L.N.		D.L.R.		D.Pat.		T.Id.F.		Met. Word		Met. List.	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
SISTER MARITA		N	107	98	108	99	108	99	108	99	108	99	108	99	108	99	108	99
		X̄	76.2	76.2	28.6	31.6	34.6	37.1	11.3	11.8	18.2	18.2	16.7	17.1	9.9	9.7	9.9	9.2
		N	126	108	127	108	127	108	127	108	127	108	127	108	127	108	127	108
		X̄	76.9	76.0	22.3	28.9	32.0	37.0	12.1	13.0	16.6	17.5	13.9	15.4	8.4	8.6	8.3	8.7
		N	118	140	118	142	118	142	118	142	118	142	118	142	118	142	118	142
		X̄	77.5	76.2	29.2	29.0	32.8	36.5	10.3	10.4	20.3	18.6	12.3	13.6	10.2	9.8	9.4	9.3
MAZURIK	Co-Basal + Writing	N	169	147	169	148	169	148	169	148	169	148	169	148	169	148	169	148
		X̄	75.0	75.3	28.9	35.0	35.1	39.7	12.3	12.7	17.2	18.4	14.5	15.9	9.6	9.6	8.9	9.4
	Initial Teaching Alphabet + Writing	N	178	150	180	150	180	150	180	150	180	150	180	150	180	150	180	150
		X̄	76.2	75.1	30.1	33.4	27.6	31.4	11.3	12.0	16.7	16.7	14.8	15.6	8.7	8.2	8.9	8.8
MCCANNE	Basal - American Book Co.	N	47	41	47	41	47	41	47	41	47	41	47	41	47	41	47	41
		X̄	77.8	77.6	15.8	14.9	21.7	20.0	9.1	7.7	7.2	7.6	13.3	13.1	5.5	5.0	8.8	8.3
	Teaching English as a Second Language	N	53	37	53	37	53	37	53	37	53	37	53	37	53	37	53	37
		X̄	79.4	79.6	18.8	22.5	23.3	26.9	9.5	9.2	9.1	9.4	11.8	14.7	5.6	5.4	8.9	8.5
	Language Experience	N	40	47	40	47	40	47	40	47	40	47	40	47	40	47	40	47
		X̄	79.8	79.9	19.6	19.4	26.2	27.8	9.6	10.4	8.0	7.2	12.8	16.6	5.9	6.5	7.6	8.7
		N																
		X̄																

PROJ			C.A.		D.Ph.		D.L.N.		D.L.R.		D.Pat.		T.Id.F.		Met. Word		Met. List.	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
MORRILL	Consultant Working with Teachers One-to-One Basis	N	158	173	158	173	158	173	158	173	158	173	158	173	158	173	158	173
		$\bar{X}$	76.4	75.2	28.9	30.3	40.6	42.8	10.3	10.9	14.8	16.2	14.9	15.5	10.1	9.7	9.8	9.7
	Consultant Working with Teachers Group Situation	N	202	172	202	172	202	172	202	172	202	172	202	172	202	172	202	172
		$\bar{X}$	76.7	76.5	26.4	32.6	40.7	44.0	10.3	11.4	14.2	14.7	16.3	19.0	9.6	9.3	9.6	9.6
MURPHY	Basal - Scott-Foresman	N	110	104	110	104	110	104	110	104	110	104	110	104	110	104	110	104
		$\bar{X}$	76.1	74.0	19.4	21.4	28.6	28.9	6.3	6.8	8.4	6.8	8.3	8.9	8.1	8.0	7.3	7.3
	Scott-Foresman + Speech to Print Phonics + Visual	N	132	112	132	112	132	112	132	112	132	112	132	112	132	112	132	112
		$\bar{X}$	76.1	75.7	19.6	22.7	29.6	33.4	8.2	9.0	9.2	10.5	12.3	13.0	8.6	8.1	7.5	7.4
	Scott-Foresman + Speech to Print Phonics + Writing	N	151	123	151	123	151	123	151	123	151	123	151	123	151	123	151	123
		$\bar{X}$	75.9	75.1	20.7	23.9	28.3	34.1	7.0	6.9	12.7	14.8	8.5	8.6	7.1	7.5	6.4	6.8
NILES	Basal	N	138	126	138	126	138	126	138	126	138	126	138	126	138	126	138	126
		$\bar{X}$	75.0	75.1	23.1	23.4	34.0	35.3	10.1	9.7	5.8	6.0	10.7	13.1	9.0	9.0	8.8	8.9
	Basal + Supplementary Remedial Teacher	N	124	115	124	115	124	115	124	115	124	115	124	115	124	115	124	115
		$\bar{X}$	75.6	74.4	21.8	25.5	34.4	36.1	9.6	9.6	4.6	4.6	11.2	11.4	9.4	8.8	8.9	8.6
	Readiness & Trade Books (Special Make)	N	136	108	136	108	136	108	136	108	136	108	136	108	136	108	136	108
		$\bar{X}$	75.3	75.6	26.3	28.0	33.1	36.0	9.8	10.2	5.4	5.5	11.3	12.8	9.7	9.0	8.8	9.0
	Remedial Teacher + Materials in 3 above	N	126	125	126	125	126	125	126	125	126	125	126	125	126	125	126	125
		$\bar{X}$	75.7	75.0	19.7	24.3	33.2	36.8	10.2	11.2	5.4	4.2	10.3	10.2	9.3	8.3	8.6	8.8

PROJ			C.A.		D.Ph.		D.L.N.		D.L.R.		D.Pat.		T.Id.F.		Met. Word		Met. List.	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
R	1. English Program Based on Communication Skills	N	30	24	30	24	30	24	30	24	30	24	30	24	30	24	30	24
		$\bar{X}$	78.3	76.0	13.3	17.5	26.5	25.4	7.7	8.1	6.5	5.6	11.0	11.7	7.8	7.2	11.4	8.1
E	2. Textbook Readiness Developing Auditory & Visual Discrimination	N	27	23	29	25	29	25	29	25	29	25	29	25	29	25	29	25
		$\bar{X}$	77.2	77.3	16.7	18.5	25.7	22.7	8.0	8.4	6.0	6.9	10.7	11.4	8.0	7.4	9.2	9.1
I	3. Functional Readiness with Easy to Read Books	N	28	30	28	31	28	31	28	31	28	31	28	31	28	31	28	31
		$\bar{X}$	77.5	79.5	13.4	13.7	20.6	25.3	7.6	8.6	8.2	7.2	15.2	14.4	7.4	6.5	8.8	9.5
D	4. Direct Teaching of Skills with Non-Word-Reading Activities	N	44	23	44	24	44	24	44	24	44	24	44	24	44	24	44	24
		$\bar{X}$	78.1	79.3	15.2	15.5	24.5	23.8	7.5	8.9	7.3	7.4	16.8	15.2	7.8	6.9	8.9	9.1
	5. Combination #1 & #2 with 15 minutes Readiness Book and 20 minutes English Program	N	28	21	28	22	28	22	28	22	28	22	28	22	28	22	28	22
		$\bar{X}$	78.4	77.1	11.4	15.0	22.4	24.7	8.2	8.5	7.8	7.6	11.6	10.7	7.9	6.7	9.5	9.3
	6. Combination #1 & #3 with 15 minutes Easy to Readn & 20 minutes English Program	N	33	21	34	21	34	21	34	21	34	21	34	21	34	21	34	21
		$\bar{X}$	77.2	77.0	21.8	19.4	26.8	28.3	7.0	8.4	6.9	9.5	9.9	14.9	7.9	8.2	9.0	9.2
	7. Combination #1 & #4 with 15 minutes Readiness Book & 20 minutes English Program	N	33	27	33	27	33	27	33	27	33	27	33	27	33	27	33	27
		$\bar{X}$	78.3	76.2	14.5	21.2	22.9	27.6	6.5	8.1	8.0	6.3	11.0	10.7	7.0	7.3	9.0	9.0
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																

PROJ			C.A.		D.Ph.		D.L.N.		D.L.R.		D.Pat.		T.Id.F.		Met. Word		Met. List.	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
RUDDELL	Basal - Allyn-Bacon	N	59	60	60	60	60	60	60	60	60	60	60	60	60	60	60	60
		$\bar{X}$	76.4	75.3	22.2	24.7	30.8	31.7	11.7	11.7	14.5	13.9	15.8	14.1	9.3	8.7	9.6	9.5
	Programmed - McGraw-Hill	N	51	45	51	46	51	46	51	46	51	46	51	46	51	46	51	46
		$\bar{X}$	77.3	76.5	20.6	18.7	30.8	32.2	9.6	9.7	12.4	11.5	14.5	18.0	7.5	6.5	8.0	7.5
	Basal - Allyn-Bacon + Language Structure Training (blocks)	N	44	67	44	67	44	67	44	67	44	67	44	67	44	67	44	67
		$\bar{X}$	75.8	75.5	19.1	22.1	34.4	34.6	11.5	10.3	10.9	10.4	14.9	13.7	10.0	7.4	9.5	8.5
	Programmed - McGraw-Hill + Language Structure Training	N	44	47	44	49	44	49	44	49	44	49	44	49	44	49	44	49
		$\bar{X}$	76.1	76.9	22.0	23.1	32.3	30.2	9.2	9.2	11.4	8.1	13.3	10.9	8.3	6.8	8.3	7.6
SCHNEYER	Basal - Scott-Foresman	N	170	164	170	164	170	164	170	164	170	164	170	164	170	164	170	164
		$\bar{X}$	75.0	74.0	18.3	22.8	30.3	32.7	9.0	9.6	12.0	13.2	12.5	13.7	7.9	7.7	8.1	8.5
	Linguistic - Fries	N	179	168	179	168	179	168	179	168	179	168	179	168	179	168	179	168
		$\bar{X}$	74.7	74.3	15.9	17.2	28.1	28.3	9.1	8.6	11.4	10.2	14.2	16.0	7.8	7.1	7.8	7.7
SHELDON	Basal - Ginn	N	73	70	73	70	73	70	73	70	73	70	73	70	73	70	73	70
		$\bar{X}$	75.2	75.2	34.0	34.9	33.2	40.1	10.3	11.0	10.2	10.3	16.5	19.0	10.9	10.9	10.3	10.4
	Modified Linguistic - L.W. Singer Co.	N	72	78	72	78	72	78	72	78	72	78	72	78	72	78	72	78
		$\bar{X}$	75.2	75.2	26.1	27.3	30.2	32.5	9.4	9.6	7.6	7.8	15.6	17.0	10.0	9.9	9.7	9.6
	Linguistic - Barnhart-Bloomfield	N	82	83	82	83	82	83	82	83	82	83	82	83	82	83	82	83
		$\bar{X}$	76.5	76.3	26.7	31.6	33.1	36.5	9.8	10.7	9.7	11.2	13.5	15.5	9.4	9.0	9.0	9.8

PROJ			C.A.		D.Ph.		D.L.N.		D.L.R.		D.Pat.		T.Id.F.		Met. Word		Met. List.	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
SPACHE		N	327	372	327	372	327	372	327	372	327	372	327	372	327	372	327	372
		$\bar{X}$	75.6	75.5	13.2	14.2	24.1	25.9	7.1	7.6	4.9	3.7	9.2	9.9	6.3	5.6	7.8	8.0
		N	327	295	327	295	327	295	327	295	327	295	327	295	327	295	327	295
		$\bar{X}$	76.6	76.5	15.1	16.8	24.4	26.4	8.1	8.4	5.2	4.8	15.6	16.3	6.6	6.0	8.1	8.3
SPENCER	Individualized	N	96	123	96	123	96	123	96	123	96	123	96	123	96	123	96	123
		$\bar{X}$	75.4	75.2	22.2	24.6	31.6	33.7	8.0	8.3	17.0	16.2	12.8	13.2	8.9	8.7	7.7	8.3
	Basal - Scott-Foresman	N	85	89	85	89	85	89	85	89	85	89	85	89	85	89	85	89
		$\bar{X}$	75.9	75.9	19.8	21.8	28.6	31.7	8.1	7.9	16.2	16.5	13.3	13.2	9.2	8.4	7.9	8.2
STAUFFER	Language Experience	N	121	117	121	117	121	117	121	117	121	117	121	117	121	117	121	117
		$\bar{X}$	75.5	75.4	19.0	22.6	24.7	28.8	7.6	8.3	11.0	11.0	11.5	13.0	8.4	7.4	8.6	8.5
	Basal	N	127	92	127	92	127	92	127	92	127	92	127	92	127	92	127	92
		$\bar{X}$	77.7	75.6	12.4	15.6	22.4	28.3	6.9	7.2	10.1	9.6	16.2	21.2	7.6	7.1	7.9	8.5
TANYZER	Lippincott	N	106	80	106	80	106	80	106	80	106	80	106	80	106	80	106	80
		$\bar{X}$	76.9	75.7	33.8	36.6	40.1	43.3	11.7	13.1	13.2	14.2	16.3	17.3	10.2	9.7	9.5	9.7
	Early to Read - Initial Teaching Alphabet	N	124	116	124	116	124	116	124	116	124	116	124	116	124	116	124	116
		$\bar{X}$	75.9	76.0	30.1	34.3	31.0	37.2	10.1	11.4	11.1	14.0	12.5	15.1	9.7	9.7	9.2	9.4
	Basal - Scott-Foresman	N	118	110	118	110	118	110	118	110	118	110	118	110	118	110	118	110
		$\bar{X}$	75.7	76.1	22.6	26.0	33.8	39.8	10.6	11.3	12.0	12.5	11.0	13.7	8.8	8.9	9.2	10.6

PROJ			C.A.		D.Ph.		D.L.N.		D.L.R.		D.Pat.		T.Id.F.		Met. Word		Met. List	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
WYATT	Lippincott - Chatto & Windus	N	89	114	89	114	89	114	89	114	89	114	89	114	89	114	89	114
		$\bar{X}$	77.9	76.1	29.7	32.0	36.3	38.8	10.3	11.2	8.2	7.6	16.0	16.8	9.8	9.7	10.5	10.5
	Basal - Ability Grouping by Sex	N	115	106	115	106	115	106	115	106	115	106	115	106	115	106	115	106
		$\bar{X}$	77.4	76.1	28.1	31.7	38.0	39.1	10.6	10.5	8.3	8.3	17.8	18.7	10.2	9.3	10.0	10.3
	Basal - No Control Over Sex in Ability Grouping	N	87	123	87	123	87	123	87	123	87	123	87	123	87	123	87	123
		$\bar{X}$	77.4	76.5	27.8	30.9	36.7	38.7	10.1	9.6	9.3	8.6	15.5	16.6	10.1	8.8	9.6	10.0
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																

PROJ			Met. Matching		Met. Numbers		Met. Copying		Met. Alphabet		Met. Total		Pintner-Cunningham		Class Size		Attitude Inventory	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
BORDEAUX	Basal - Scott-Foresman	N	114	118	114	118	113	118	114	118	113	118	114	118	111	118	111	111
		$\bar{X}$	5.7	5.5	9.0	9.1	3.8	3.9	7.1	7.1	39.8	39.8	35.5	36.0	30.2	30.3	17.4	18.4
	Intensified Phonics	N	114	108	114	108	113	108	115	108	115	107	115	108	115	108	108	102
		$\bar{X}$	6.2	5.2	10.1	9.3	4.2	4.0	7.6	7.8	43.6	40.5	36.0	34.7	31.4	31.3	18.1	18.1
	Phonics with Sensory Experience	N	114	109	114	109	114	109	114	109	113	109	114	109	114	109	110	106
		$\bar{X}$	5.6	6.8	9.2	10.3	3.7	4.6	7.3	9.0	41.1	45.9	35.7	37.3	31.3	31.1	16.8	17.5
CHALL		N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85	98
		$\bar{X}$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15.8	15.9
CLELAND	Coordinated Language Experience	N	131	156	131	156	131	156	131	156	131	156	131	156	131	156	131	156
		$\bar{X}$	6.5	7.7	12.1	12.4	8.2	8.5	8.3	10.1	52.3	56.2	35.3	37.6	30.3	30.6	18.5	19.6
	Basal - Scott-Foresman	N	192	184	192	184	192	184	192	184	192	184	192	184	192	184	192	184
		$\bar{X}$	8.1	8.5	13.5	13.0	7.9	8.0	9.1	10.0	57.1	57.2	36.0	38.3	36.0	35.6	17.1	18.6
FRY	Diacritical Marking System	N	70	62	70	62	70	62	70	62	70	62	70	62	-	-	-	-
		$\bar{X}$	5.9	7.0	10.7	10.5	5.6	7.0	7.2	8.0	47.7	51.3	37.7	38.9	-	-	-	-
	Initial Teaching Alphabet	N	71	63	71	63	71	63	71	63	71	63	71	63	-	-	-	-
		$\bar{X}$	5.4	6.8	9.9	10.2	5.7	7.3	7.4	9.4	46.5	51.6	37.5	39.1	-	-	-	-
	Basal - Sheldon Readers	N	55	55	55	55	55	55	55	55	55	55	55	55	-	-	-	-
		$\bar{X}$	5.9	8.8	10.9	12.3	6.0	8.7	8.8	10.8	49.3	59.8	37.9	43.3	-	-	-	-

PROJ			Met. Matching		Met. Numbers		Met. Copying		Met. Alphabet		Met. Total		Pintner-Cunningham		Class Size		Attitude Inventory	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HAHN	Initial Teaching Alphabet	N	132	123	132	123	132	123	132	123	132	123	132	123	132	123	122	117
		$\overline{X}$	7.7	8.3	13.6	13.6	8.2	8.4	10.3	11.1	59.4	61.2	39.3	40.7	26.8	27.2	17.7	18.9
	Language Experience	N	135	134	135	134	135	134	135	134	135	134	135	134	135	134	130	129
		$\overline{X}$	7.4	7.9	12.6	13.1	7.9	8.1	10.5	11.6	57.8	60.1	39.4	41.0	28.1	27.6	16.9	18.8
	Basal	N	148	128	148	128	148	128	148	128	148	128	148	128	148	128	143	121
		$\overline{X}$	7.8	8.1	13.0	12.9	8.0	8.5	10.6	11.4	58.7	60.1	39.6	39.9	28.6	28.6	16.6	19.3
HARRIS	Language Experience	N	-	-	-	-	-	-	-	-	-	-	-	-	178	179	140	136
		$\overline{X}$	-	-	-	-	-	-	-	-	-	-	-	-	30.9	30.4	15.6	16.1
	Language Experience + Audio-Visual	N	-	-	-	-	-	-	-	-	-	-	-	-	170	173	126	132
		$\overline{X}$	-	-	-	-	-	-	-	-	-	-	-	-	30.0	29.7	15.2	16.0
	Skills Centered Basal	N	-	-	-	-	-	-	-	-	-	-	-	-	170	162	133	143
		$\overline{X}$	-	-	-	-	-	-	-	-	-	-	-	-	27.7	27.9	14.5	15.5
	Skills Centered Basal with Phonovisual Word Attack	N	-	-	-	-	-	-	-	-	-	-	-	-	164	180	137	140
		$\overline{X}$	-	-	-	-	-	-	-	-	-	-	-	-	29.2	29.0	17.2	17.2
		N																
		$\overline{X}$																
		N																
		$\overline{X}$																

PROJ			Met. Matching		Met. Numbers		Met. Copying		Met. Alphabet		Met. Total		Pintner-Cunningham		Class Size		Attitude Inventory	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HAYES	Basal - Scott-Foresman	N	45	42	45	42	45	42	45	42	45	42	45	42	45	42	45	42
		$\bar{X}$	4.5	5.7	11.2	12.2	5.2	5.8	7.0	8.3	43.0	47.3	31.8	35.5	21.0	21.0	16.5	18.9
	Lippincott Basal with Filmstrips	N	53	46	53	46	53	46	53	46	53	46	53	46	53	46	53	46
		$\bar{X}$	4.4	4.2	9.0	9.8	2.2	2.6	5.7	7.7	34.8	38.6	30.6	33.9	24.0	24.3	16.7	19.2
	Scott-Foresman with Phonics and Word Power	N	50	53	50	53	50	53	50	53	50	53	50	53	50	53	50	53
		$\bar{X}$	4.5	4.4	8.1	9.2	2.6	3.3	5.8	6.3	35.2	37.5	29.5	32.3	27.1	27.0	18.3	20.2
	Initial Teaching Alphabet	N	44	52	44	52	44	52	44	52	44	52	44	52	44	52	44	52
		$\bar{X}$	5.3	6.3	10.5	11.6	4.3	5.6	7.9	9.1	45.9	49.1	33.0	33.3	23.7	23.6	17.2	18.1
HEILMAN	In-Service Teaching Program	N	157	144	157	144	157	144	157	144	157	144	157	144	-	-	-	-
		$\bar{X}$	7.9	8.1	12.0	12.0	7.5	7.4	8.2	10.0	53.9	55.5	39.3	40.5	-	-	-	-
	Control	N	141	137	141	137	141	137	141	137	141	137	141	137	-	-	-	-
		$\bar{X}$	7.5	8.6	12.1	12.7	7.4	7.6	8.1	9.4	53.1	55.1	40.4	42.0	-	-	-	-
HORN	Oral - Aural English	N	85	79	85	79	85	79	85	79	85	79	85	79	85	79	-	-
		$\bar{X}$	1.5	2.6	3.4	3.8	1.5	2.0	1.4	1.5	13.6	16.3	14.9	17.1	25.1	25.1	-	-
	Oral - Aural Spanish	N	96	73	96	73	96	73	96	73	96	73	96	73	96	73	-	-
		$\bar{X}$	2.5	2.8	4.0	4.6	2.5	2.8	2.1	2.4	18.3	19.7	15.8	17.3	23.3	24.0	-	-
	No Oral -Aural Spanish	N	85	84	85	84	85	84	85	84	85	84	85	84	85	84	-	-
		$\bar{X}$	3.4	3.3	4.8	4.6	2.9	3.1	2.6	2.5	21.2	21.6	19.8	19.7	25.0	24.7	-	-

PROJ			Met. Matching		Met. Numbers		Met. Copying		Met. Alphabet		Met. Total		Pintner-Cunningham		Class Size		Attitude Inventory	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
KENDRICK	Language Experience	N	332	305	332	305	332	305	332	305	332	305	332	305	332	305	330	303
		$\bar{X}$	6.9	7.6	12.9	12.7	6.4	6.5	10.3	10.9	55.9	56.0	39.2	40.4	29.4	29.4	16.5	18.0
	Basal - Ginn	N	354	298	354	298	354	298	354	298	354	298	354	298	354	298	349	293
		$\bar{X}$	7.9	8.5	12.6	13.2	7.8	8.4	9.6	10.6	55.9	58.3	36.6	38.7	30.8	31.1	16.8	18.3
MACDONALD	Basal - Ability Grouping	N	99	85	99	85	99	85	99	85	102	88	100	85	102	88	-	-
		$\bar{X}$	9.2	10.0	12.9	12.8	7.3	7.5	8.6	9.8	55.4	56.3	38.3	39.4	24.2	24.3	-	-
	Basal - One-to-One	N	77	83	77	83	77	83	77	83	80	83	81	80	81	83	-	-
		$\bar{X}$	8.8	10.0	13.2	14.1	7.9	7.4	9.9	11.1	57.7	61.5	38.8	39.7	27.5	26.9	-	-
MANNING	Basal - Ginn	N	158	152	158	152	158	152	158	152	158	152	158	152	158	150	136	133
		$\bar{X}$	8.2	8.9	11.7	12.3	8.6	9.1	8.0	9.0	53.3	55.5	31.8	33.5	29.5	29.7	17.1	17.6
	Visual & Auditory + Ginn	N	134	126	134	126	134	126	134	126	134	126	134	126	134	126	115	106
		$\bar{X}$	8.8	9.5	11.3	12.2	8.5	9.0	11.4	12.2	57.5	59.7	32.3	34.9	28.1	28.2	16.0	16.3
	Written Language + Visual-Auditory + Ginn	N	128	130	128	130	128	130	128	130	128	130	128	130	128	130	123	126
		$\bar{X}$	9.6	9.7	12.9	12.8	9.3	9.6	12.8	12.9	63.1	62.6	33.9	34.6	28.1	28.2	16.3	16.0
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																

PROJ			Met. Matching		Met. Numbers		Met. Copying		Met. Alphabet		Met. Total		Pintner-Cunningham		Class Size		Attitude Inventory	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
SISTER MARITA		N	108	99	108	99	108	99	108	99	108	99	108	99	108	99	106	95
		$\bar{X}$	9.0	9.4	14.6	13.9	7.6	7.7	9.1	10.4	60.2	60.4	39.6	39.7	25.9	26.1	16.8	17.8
		N	127	108	127	108	127	108	127	108	127	108	127	108	127	108	116	100
		$\bar{X}$	6.2	7.1	11.1	11.9	6.6	7.4	8.5	9.2	54.2	52.8	36.7	38.6	30.9	31.7	16.5	18.1
		N	118	142	118	142	118	142	118	142	118	142	118	142	118	142	108	131
		$\bar{X}$	7.1	7.5	12.7	12.7	7.6	7.1	8.8	9.8	55.8	56.2	40.5	40.8	26.5	25.7	16.0	17.7
MAZURK	Co-Basal + Writing	N	-	-	-	-	-	-	-	-	-	-	169	148	169	148	157	141
		$\bar{X}$	-	-	-	-	-	-	-	-	-	-	39.7	41.6	27.9	27.8	16.9	18.4
	Initial Teaching Alphabet & Writing	N	-	-	-	-	-	-	-	-	-	-	180	150	180	150	165	137
		$\bar{X}$	-	-	-	-	-	-	-	-	-	-	39.4	40.0	30.9	31.4	17.1	19.1
MCCANNE	Basal - American Book Co.	N	47	41	47	41	47	41	47	41	47	41	47	41	47	41	47	40
		$\bar{X}$	6.7	6.4	10.5	9.5	4.6	5.5	6.1	5.6	42.1	40.1	31.6	32.0	25.6	25.9	18.9	19.4
	Teaching English as a Second Language	N	52	37	53	37	53	37	53	37	52	37	53	37	53	37	52	37
		$\bar{X}$	7.1	7.2	10.0	10.8	5.2	4.8	6.4	7.3	43.4	44.0	32.7	34.6	24.4	26.3	17.1	18.0
	Language Experience	N	40	47	40	47	40	47	40	47	40	47	40	47	35	44	40	47
		$\bar{X}$	7.1	8.0	10.6	11.5	5.6	6.3	7.3	7.1	44.1	48.1	32.2	34.5	25.3	26.7	17.9	18.1
		N																
		$\bar{X}$																

PROJ			Met. Matching		Met. Numbers		Met. Copying		Met. Alphabet		Met. Total		Pintner-Cunningham		Class Size		Attitude Inventory	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
MORRILL	Consultant Working with Teachers One-to-One Basis	N	158	173	155	171	155	170	158	172	155	170	158	173	158	173	134	151
		X̄	10.1	10.3	14.2	13.8	7.2	7.6	12.8	13.4	64.3	64.6	39.3	40.5	23.9	24.0	17.3	18.8
	Consultant Working with Teachers Group Situation	N	202	172	202	172	202	172	202	172	202	172	202	172	202	172	186	160
		X̄	9.8	11.0	13.8	14.4	7.0	7.1	12.5	13.6	62.1	64.7	39.0	41.5	24.4	24.2	16.0	18.4
MURPHY	Basal - Scott-Foresman	N	100	96	100	96	100	96	100	96	100	96	110	104	110	104	110	104
		X̄	6.1	5.7	9.6	9.8	4.0	4.2	8.0	8.1	42.3	42.6	32.8	33.5	26.2	27.7	16.5	18.0
	Scott-Foresman + Speech to Print Phonics + Visual	N	123	107	123	107	123	107	123	107	123	107	132	112	132	112	132	112
		X̄	7.0	7.8	11.3	11.3	4.8	5.6	10.0	10.6	49.2	50.2	32.4	34.9	27.0	26.8	15.9	18.2
	Scott-Foresman + Speech to Print Phonics + Writing	N	114	102	114	102	114	102	114	102	151	123	151	123	151	123	151	123
		X̄	6.1	6.6	10.7	11.2	6.6	7.3	9.0	10.0	46.0	50.0	33.7	36.6	30.2	31.1	17.1	17.9
NILES	Basal	N	138	126	-	-	-	-	-	-	-	-	138	126	138	126	137	126
		X̄	8.3	8.9	-	-	-	-	-	-	-	-	34.4	36.3	30.4	30.4	16.4	17.6
	Basal + Supplementary Remedial Teacher	N	124	115	-	-	-	-	-	-	-	-	124	115	124	115	123	114
		X̄	8.3	8.8	-	-	-	-	-	-	-	-	36.0	36.5	29.3	29.6	16.3	18.5
	Readiness & Trade Books (Special Make)	N	136	108	-	-	-	-	-	-	-	-	136	108	136	108	136	105
		X̄	8.3	8.9	-	-	-	-	-	-	-	-	36.7	36.8	29.1	28.8	16.9	18.3
	Remedial Teacher + Materials in #3 above	N	126	125	-	-	-	-	-	-	-	-	126	125	126	125	125	125
		X̄	8.4	8.1	-	-	-	-	-	-	-	-	33.3	34.1	30.2	30.1	17.2	17.7

PROJ			Met. Matching		Met. Numbers		Met. Copying		Met. Alphabet		Met. Total		Pintner-Cunningham		Class Size		Attitude Inventory	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
R	1. English Program Based on Communication Skills	N	30	24	30	24	30	24	30	24	30	24	30	24	30	24	-	-
		X̄	5.7	6.1	10.3	8.6	7.0	6.7	6.9	6.6	46.8	43.4	32.2	33.0	24.5	23.3	-	-
E	2. Textbook Readiness Developing Auditory & Visual Discrimination	N	29	25	29	25	29	25	29	25	29	25	29	25	29	25	-	-
		X̄	6.1	6.0	10.1	10.5	6.0	8.5	7.1	6.5	46.5	48.0	32.7	33.3	24.7	24.6	-	-
I	3. Functional Readiness with Easy to Read Books	N	28	31	28	31	28	31	28	31	28	31	28	31	28	31	-	-
		X̄	5.8	6.5	9.7	10.7	7.5	8.4	5.2	6.9	44.5	48.5	32.7	36.7	23.0	23.6	-	-
D	4. Direct Teaching of Skills with Non-Word-Reading Activities	N	44	24	44	24	44	24	44	24	44	24	44	24	44	24	-	-
		X̄	6.0	6.4	10.7	10.6	8.7	8.2	7.1	7.0	48.7	47.9	33.2	34.8	22.3	21.5	-	-
	5. Combination #1 & #2 with 15 minutes Readiness Book & 20 minutes English Program	N	28	22	28	22	28	22	28	22	28	22	28	22	28	22	-	-
		X̄	5.3	5.6	10.9	9.3	7.1	6.7	5.6	6.6	46.2	44.2	33.9	34.3	24.0	25.1	-	-
	6. Combination #1 & #3 with 15 minutes Easy to Read & 20 minutes English Program	N	34	21	34	21	34	21	34	21	34	21	34	21	34	21	-	-
		X̄	5.9	6.5	11.3	11.0	7.2	8.6	6.8	7.0	48.1	51.4	36.0	37.6	25.6	25.0	-	-
	7. Combination #1 & #4 with 15 minutes Readiness Book & 20 minutes English Program	N	33	27	33	27	33	27	33	27	33	27	33	27	33	27	-	-
		X̄	5.8	5.5	11.0	10.8	6.9	7.8	6.5	7.8	46.2	47.9	34.3	34.9	23.5	22.2	-	-
		N																
		X̄																
		N																
		X̄																

PROJ			Met. Matching		Met. Numbers		Met. Copying		Met. Alphabet		Met. Total		Pintner-Cunningham		Class Size		Attitude Inventory	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
RUDDELL	Basal - Allyn-Bacon	N	60	60	60	60	60	60	60	60	60	60	60	60	60	60	53	58
		$\bar{X}$	6.8	7.2	11.2	11.8	7.7	7.7	9.1	8.9	53.3	53.2	36.9	37.6	29.1	29.7	17.9	18.6
	Programmed - McGraw-Hill	N	51	46	51	46	51	46	51	46	51	46	51	46	51	46	49	43
		$\bar{X}$	5.1	5.0	9.8	9.1	6.5	6.4	8.4	8.5	44.9	42.9	33.8	31.3	28.8	29.1	18.4	19.9
	Basal - Allyn-Bacon + Language Structure Training (blocks)	N	44	67	44	67	44	67	44	67	44	67	44	67	44	67	42	60
		$\bar{X}$	5.1	5.2	9.6	10.2	6.3	6.7	8.0	8.9	45.7	46.8	35.5	35.1	33.0	33.8	17.5	17.6
	Programmed - McGraw-Hill + Language Structure Training	N	44	49	44	49	44	49	44	49	44	49	44	49	44	49	38	47
		$\bar{X}$	5.3	4.8	11.3	9.9	6.4	5.9	8.3	7.7	48.2	42.7	34.3	31.0	29.4	32.7	17.1	17.6
SCHNEYER	Basal - Scott-Foresman	N	170	164	170	164	170	164	170	164	170	164	170	164	170	164	169	163
		$\bar{X}$	7.9	8.4	11.2	11.9	5.6	6.3	8.6	9.1	49.3	51.9	29.8	32.8	32.8	32.9	18.0	17.5
	Linguistic - Fries	N	179	168	179	168	179	168	179	168	179	168	179	168	179	168	179	168
		$\bar{X}$	7.7	7.7	11.1	10.5	5.1	5.1	7.4	7.9	46.9	46.0	29.3	29.6	32.0	31.8	17.7	18.6
SHELDON	Basal - Ginn	N	73	70	73	70	73	70	73	70	73	70	73	70	73	70	73	70
		$\bar{X}$	8.3	9.5	14.5	14.9	6.9	7.2	9.5	11.9	60.6	64.9	41.0	42.9	23.2	22.4	17.7	18.3
	Modified Linguistic - L. W. Singer Co.	N	72	78	72	78	72	78	72	78	72	78	72	78	72	78	72	78
		$\bar{X}$	8.7	8.5	13.9	13.3	5.6	6.0	8.7	9.6	56.5	56.9	38.7	40.2	24.7	24.3	18.1	18.6
	Linguistic - Barnhart-Bloomfield	N	82	83	82	83	82	83	82	83	82	83	82	83	82	83	82	83
		$\bar{X}$	8.1	8.6	12.5	13.5	6.0	6.7	9.4	10.1	54.5	57.8	36.7	39.6	24.4	25.5	18.3	19.3

PROJ			Met. Matching		Met. Numbers		Met. Copying		Met. Alphabet		Met. Total		Pintner-Cunningham		Class Size		Attitude Inventory	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
SPACHE		N	324	365	327	370	327	370	327	370	324	361	327	372	327	372	316	358
		$\bar{X}$	5.0	4.5	9.2	8.9	4.8	4.6	6.5	7.0	39.8	39.4	26.9	26.7	28.5	28.7	16.2	17.1
		N	326	295	325	295	325	295	325	295	325	295	327	295	327	295	312	280
		$\bar{X}$	5.6	5.7	8.8	8.9	3.5	3.5	6.6	7.5	39.1	39.6	28.6	29.6	28.0	28.1	16.5	17.5
SPENCER	Individualized	N	96	123	86	114	86	114	96	123	86	114	96	123	96	123	95	121
		$\bar{X}$	5.6	6.6	11.5	11.8	7.3	8.0	9.0	9.3	50.4	53.1	34.1	35.8	23.2	22.8	16.2	19.4
	Basal - Scott-Foresman	N	85	89	78	79	78	79	85	89	78	79	85	89	85	89	83	86
		$\bar{X}$	6.4	7.5	11.2	11.4	6.8	6.7	8.2	8.9	49.6	50.7	34.2	35.5	20.5	19.4	11.2	13.5
STAUFFER	Language Experience	N	121	117	121	117	121	117	121	117	121	117	121	117	121	117	113	110
		$\bar{X}$	5.9	6.4	8.0	9.0	11.3	11.6	6.7	7.3	48.9	50.3	34.3	35.5	28.4	28.7	18.4	19.1
	Basal	N	127	92	127	92	127	92	127	92	127	92	127	92	127	92	118	84
		$\bar{X}$	5.5	6.2	6.7	8.7	10.6	11.7	6.7	7.2	45.1	49.4	32.7	37.9	26.7	26.6	18.9	19.3
TANYZER	Lippincott	N	106	79	106	80	106	80	106	79	106	79	106	80	106	80	-	-
		$\bar{X}$	10.2	11.1	15.2	15.0	9.6	10.1	12.9	13.6	67.8	69.5	40.2	42.1	26.6	26.6	-	-
	Early to Read - Initial Teaching Alphabet	N	124	116	124	116	124	116	124	116	124	116	124	116	124	116	-	-
		$\bar{X}$	10.5	11.0	14.0	14.4	8.1	9.1	9.3	11.4	60.6	65.0	38.7	41.9	27.7	27.6	-	-
	Basal - Scott-Foresman	N	118	110	118	110	118	110	118	110	118	110	118	110	118	110	-	-
		$\bar{X}$	9.9	11.1	13.6	14.4	8.9	9.6	10.1	12.4	60.4	66.2	35.7	39.7	27.3	27.4	-	-

PROJ			Met. Matching		Met. Numbers		Met. Copying		Met. Alphabet		Met. Total		Pintner-Cunningham		Class Size		Attitude Inventory	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
WYATT	Lippincott - Chatto & Windus	N	89	114	89	114	89	114	89	114	89	114	89	114	89	114	89	114
		$\bar{X}$	8.5	8.7	13.7	13.9	7.6	7.6	10.4	11.0	60.4	61.2	40.8	42.3	24.0	23.8	19.3	19.7
	Basal - Ability Grouping by Sex	N	115	106	115	106	115	106	115	106	115	106	115	106	115	106	115	106
		$\bar{X}$	8.9	9.7	14.1	13.7	7.9	7.8	11.0	11.4	62.1	62.3	41.3	43.0	24.6	24.8	17.9	18.9
	Basal - No Control Over Sex in Ability Grouping	N	87	123	87	123	87	123	87	123	87	123	87	123	87	123	87	123
		$\bar{X}$	8.3	8.5	13.3	13.2	7.7	8.0	10.1	11.1	59.0	59.7	40.5	41.1	23.1	23.1	17.6	17.9
		N																
		$\bar{X}$																
		N																
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		N																
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PROJ			Stanford Word Readg		Stanford Parag Mean		Stanford Vocabulary		Stanford Spelling		Stanford Word Study		Stanford Arithmetic		Class Size--End		Pupil Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
BORDEAUX	Basal - Scott-Foresman	N	114	118	114	118	114	118	114	118	114	118	-	-	114	118	108	116
		$\bar{X}$	15.3	16.6	15.6	18.1	16.7	16.8	8.6	9.9	29.1	30.4	-	-	30.5	30.8	6.2	6.9
	Intensified Phonics	N	115	108	115	108	115	108	115	108	115	108	-	-	115	108	113	108
		$\bar{X}$	15.9	16.9	15.2	18.2	18.2	18.1	8.7	9.3	30.1	30.2	-	-	31.3	31.2	7.8	7.1
	Phonics with Sensory Experience	N	114	109	114	109	114	109	114	109	114	109	-	-	114	109	113	108
		$\bar{X}$	17.6	20.0	16.7	20.1	19.7	19.9	9.2	12.6	30.0	33.1	-	-	31.4	31.1	7.2	7.7
CHALL		N	88	100	88	100	88	100	88	100	88	100	-	-	88	100	85	96
		$\bar{X}$	13.9	15.0	10.8	13.2	14.1	14.1	6.8	7.9	23.7	26.4	-	-	25.4	25.7	12.6	15.7
CLELAND	Coordinated Language Experience	N	131	156	131	156	131	156	131	156	131	156	131	156	131	156	131	156
		$\bar{X}$	23.3	25.3	24.6	28.8	24.4	24.8	14.0	16.2	39.4	41.9	-	.6	28.1	28.3	14.4	15.3
	Basal - Scott-Foresman	N	192	184	192	184	192	184	192	184	192	184	192	184	192	184	192	184
		$\bar{X}$	22.1	22.9	24.2	26.1	23.1	22.7	15.1	16.6	38.2	40.0	-	-	35.2	34.5	12.8	14.0
FRY	Diacritical Marking System	N	70	62	70	62	70	62	70	62	70	62	-	-	70	62	70	62
		$\bar{X}$	17.9	19.7	15.7	19.1	22.2	20.6	8.1	9.8	33.4	35.1	-	-	24.1	23.9	9.9	10.5
	Initial Teaching Alphabet	N	71	63	71	63	71	63	71	63	71	63	-	-	71	63	71	73
		$\bar{X}$	20.6	21.7	16.8	19.7	23.5	22.0	7.0	8.6	35.2	36.5	-	-	25.0	24.9	7.5	8.9
	Basal - Sheldon Readers	N	55	55	55	55	55	55	55	55	55	55	-	-	55	55	55	55
		$\bar{X}$	19.0	22.0	18.2	22.6	21.8	25.6	9.8	12.7	32.4	37.0	-	-	24.6	24.3	10.1	10.1

PROJ			Stanford Word Readg		Stanford Parag Mean		Stanford Vocabulary		Stanford Spelling		Stanford Word Study		Stanford Arithmetic		Class Size--End		Pupil Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HAHN	Initial Teaching Alphabet	N	132	123	132	123	132	123	132	123	132	123	131	123	132	123	132	120
		$\bar{X}$	23.5	24.6	19.9	23.3	21.8	22.2	10.5	11.9	39.1	39.9	39.5	39.0	26.1	26.1	11.6	13.9
	Language Experience	N	135	134	135	134	135	134	135	134	135	134	135	133	135	134	135	134
		$\bar{X}$	23.5	24.3	20.1	24.4	22.3	22.4	12.9	14.7	38.7	40.2	38.7	38.2	26.7	26.3	11.7	11.8
	Basal	N	148	128	148	128	148	128	148	128	148	128	148	128	148	128	147	127
		$\bar{X}$	21.6	23.2	19.7	23.5	21.5	21.8	12.1	14.3	37.4	39.7	37.3	37.2	27.9	28.1	11.7	12.2
HARRIS	Language Experience	N	147	139	146	137	148	140	143	138	144	138	-	-	178	179	144	140
		$\bar{X}$	11.7	12.4	9.0	10.0	13.4	14.1	5.7	6.3	24.0	24.3	-	-	29.7	29.5	16.1	16.8
	Language Experience + Audio-Visual	N	133	141	131	138	130	140	128	140	132	140	-	-	170	173	135	143
		$\bar{X}$	12.8	12.6	8.6	8.2	14.5	13.5	5.7	5.8	26.0	24.5	-	-	28.1	28.0	13.8	15.3
	Skills Centered Basal	N	136	145	135	141	134	141	132	141	133	143	-	-	170	162	136	147
		$\bar{X}$	14.0	14.9	8.9	11.1	13.8	14.5	5.7	7.0	25.4	28.4	-	-	28.2	28.3	14.1	14.2
	Skills Centered Basal with Phonovisual Word Attack	N	142	145	141	143	138	143	138	143	137	145	-	-	164	180	140	149
		$\bar{X}$	14.5	14.4	12.1	13.3	15.4	15.6	7.2	8.6	27.4	27.6	-	-	29.0	28.5	13.9	14.9
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																

PROJ			Stanford Word Readg		Stanford Parag Mean		Stanford Vocabulary		Stanford Spelling		Stanford Word Study		Stanford Arithmetic		Class Size--End		Pupil Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HAYES	Basal - Scott-Foresman	N	45	42	45	42	45	42	45	42	45	42	45	42	45	42	45	42
		X̄	17.7	19.5	17.5	21.3	21.9	22.5	8.5	9.6	34.1	34.5	38.3	38.4	20.4	20.7	8.5	7.8
	Lippincott Basal with Filmstrips	N	53	46	53	46	53	46	53	46	53	46	53	46	53	46	53	46
		X̄	22.8	27.2	20.3	26.1	20.6	22.6	10.1	14.6	36.2	40.9	31.1	35.1	22.4	22.8	8.5	9.0
	Scott-Foresman with Phonics and Word Power	N	50	53	50	53	50	53	50	53	50	53	50	53	50	53	50	53
		X̄	18.7	19.8	16.7	21.6	19.1	19.6	9.5	12.1	33.8	36.6	32.7	33.9	27.1	27.1	10.7	10.3
	Initial Teaching Alphabet	N	44	52	44	52	44	52	44	52	44	52	44	52	44	52	44	52
		X̄	25.0	25.8	22.1	24.1	23.1	22.2	14.9	15.3	40.5	41.6	41.2	39.0	22.1	22.0	8.6	10.7
HEILMAN	In-Service Teaching Program	N	157	144	157	144	157	144	157	144	157	144	-	-	157	144	157	143
		X̄	19.0	19.9	19.1	21.4	20.7	20.1	9.9	11.1	35.4	37.2	-	-	28.6	28.6	8.0	9.0
	Control	N	141	137	141	137	141	137	141	137	141	137	-	-	141	137	140	137
		X̄	17.9	19.2	17.2	20.3	18.8	19.9	8.5	10.3	33.5	36.5	-	-	26.0	25.4	9.1	8.3
HORN	Oral - Aural English	N	85	79	85	79	85	79	85	79	85	79	-	-	85	79	85	79
		X̄	9.6	10.5	5.4	6.3	12.4	12.0	2.6	3.5	18.1	20.0	-	-	26.9	27.0	11.7	13.7
	Oral - Aural Spanish	N	96	73	96	73	96	73	96	73	96	73	-	-	96	73	95	73
		X̄	10.2	10.2	7.8	7.1	12.9	12.1	3.7	3.5	21.9	21.7	-	-	26.0	25.8	11.9	11.8
	No Oral - Aural Spanish	N	85	84	85	84	85	84	85	84	85	84	-	-	85	84	85	84
		X̄	10.1	11.3	8.4	10.3	12.4	12.6	4.7	5.4	23.1	23.8	-	-	26.6	26.3	11.6	13.7

PROJ			Stanford Word Readg		Stanford Parag Mean		Stanford Vocabulary		Stanford Spelling		Stanford Word Study		Stanford Arithmetic		Class Size--End		Pupil Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
KENDRICK	Language Experience	N	332	305	332	305	332	305	332	305	332	305	332	305	332	305	332	305
		X̄	18.3	19.7	14.8	17.6	21.8	21.7	9.1	10.6	32.6	34.8	39.0	38.7	25.2	25.3	25.1	23.3
	Basal - Ginn	N	354	298	354	298	354	298	354	298	354	298	354	298	354	298	354	298
		X̄	18.4	20.1	18.1	21.1	21.2	21.8	9.2	10.8	33.9	35.6	36.6	37.4	26.0	25.9	36.3	37.0
MACDONALD	Basal - Ability Grouping	N	102	88	102	88	102	88	102	88	102	88	102	88	102	88	86	80
		X̄	21.7	24.0	22.3	26.5	21.8	21.2	13.6	16.0	35.5	38.6	42.0	43.0	23.9	23.9	6.8	9.3
	Basal - One-to-One	N	81	83	81	83	81	83	81	82	81	83	69	73	81	83	71	71
		X̄	22.3	24.8	21.9	25.5	21.9	22.5	12.8	15.3	35.7	38.9	43.2	44.3	28.1	27.7	10.2	10.2
MANNING	Basal - Ginn	N	158	152	158	152	158	152	158	152	158	152	-	-	158	152	156	151
		X̄	15.1	17.5	13.4	16.7	17.1	18.4	4.1	6.1	27.1	28.9	-	-	30.7	31.1	9.4	8.9
	Visual & Auditory + Ginn	N	134	126	134	126	134	126	134	126	134	126	1	-	134	126	134	126
		X̄	20.0	20.1	17.2	20.0	21.0	20.6	8.8	10.2	32.4	34.1	18.0	-	28.8	28.4	8.0	9.3
	Written Language + Visual-Auditory + Ginn	N	128	130	128	130	128	130	128	130	128	130	-	-	128	130	128	129
		X̄	20.4	20.2	19.5	21.6	21.8	20.6	10.4	11.5	33.6	35.0	-	-	29.5	28.9	7.8	7.4
		N																
		X̄																
		N																
		X̄																

PROJ			Stanford Word Readg		Stanford Parag Mean		Stanford Vocabulary		Stanford Spelling		Stanford Word Study		Stanford Arithmetic		Class Size--End		Pupil Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
SISTER MARITA		N	108	99	108	99	108	99	108	99	108	99	108	99	108	99	108	99
		$\bar{X}$	21.1	23.1	19.9	25.5	22.3	22.1	10.7	12.5	38.1	40.6	42.3	40.4	22.3	22.7	8.1	7.9
		N	127	108	127	108	127	108	127	108	127	108	127	107	127	108	126	108
		$\bar{X}$	19.2	21.4	19.7	23.5	20.9	21.4	9.9	12.1	35.0	37.8	33.2	35.1	28.6	28.7	9.3	10.8
		N	118	142	118	142	118	142	118	142	118	142	118	141	118	142	118	141
		$\bar{X}$	21.6	21.9	21.5	23.3	22.5	22.0	10.6	11.1	38.9	38.7	41.1	39.5	28.0	27.5	9.0	8.8
MAZURK	Co-Basal + Writing	N	169	148	169	148	169	148	169	148	169	148	1	-	169	148	168	148
		$\bar{X}$	20.9	23.5	19.6	23.2	22.2	22.7	12.9	14.8	38.4	40.8	3.0	-	28.2	27.8	9.3	8.6
	Initial Teaching Alphabet & Writing	N	180	150	180	150	180	150	180	150	180	150	4	-	180	150	178	150
		$\bar{X}$	21.0	24.0	19.0	22.4	20.9	21.0	8.5	9.5	34.8	38.9	18.0	-	30.0	30.6	7.6	9.2
MCCANNE	Basal - American Book Co.	N	47	41	47	41	47	41	47	41	47	41	-	-	47	41	47	40
		$\bar{X}$	17.7	19.0	15.7	17.1	16.3	16.9	8.2	10.8	31.5	34.9	-	-	25.0	24.9	9.3	11.5
	Teaching English as a Second Language	N	53	37	53	37	53	37	53	37	53	37	-	-	53	37	52	37
		$\bar{X}$	17.1	19.0	16.5	19.9	17.8	18.3	7.8	10.8	30.8	34.3	-	-	24.1	25.8	9.3	10.3
	Language Experience	N	40	47	40	47	40	47	40	47	40	47	-	1	40	47	40	47
		$\bar{X}$	18.1	19.9	15.0	18.3	15.7	16.0	10.1	12.2	34.1	35.3	-	21.0	23.0	24.3	11.6	10.9
		N																
		$\bar{X}$																

PROJ			Stanford Word Readg		Stanford Parag Mean		Stanford Vocabulary		Stanford Spelling		Stanford Word Study		Stanford Arithmetic		Class Size--End		Pupil Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
MORRILL	Consultant Working with Teachers One-to-One Basis	N	158	173	158	173	158	173	158	173	158	173	157	172	158	173	158	173
		$\bar{X}$	22.3	22.9	20.6	24.7	23.3	23.0	12.2	13.5	39.0	40.7	40.0	40.3	23.5	23.7	9.5	10.3
	Consultant Working with Teachers Group Situation	N	202	172	202	172	202	172	202	172	202	172	201	171	202	172	201	172
		$\bar{X}$	21.4	24.5	19.4	24.4	21.9	22.4	12.1	15.0	37.7	42.7	37.8	39.7	25.0	24.7	9.9	9.8
MURPHY	Basal - Scott-Foresman	N	110	104	110	104	110	104	110	104	110	104	-	-	110	104	110	104
		$\bar{X}$	22.2	23.0	20.3	20.9	22.5	20.9	11.3	12.1	36.2	38.9	-	-	25.0	25.9	8.7	11.1
	Scott-Foresman + Speech to Print Phonics + Visual	N	132	112	132	112	132	112	132	112	132	112	-	-	132	112	132	112
		$\bar{X}$	24.6	26.9	23.8	26.5	22.9	24.5	10.3	11.3	37.6	39.0	-	-	25.9	26.1	8.9	9.2
	Scott-Foresman + Speech to Print Phonics + Writing	N	151	123	151	123	151	123	151	123	151	123	-	-	151	123	151	123
		$\bar{X}$	21.2	23.9	18.7	24.7	23.3	24.6	12.3	15.1	39.4	43.9	-	-	29.7	30.5	13.9	15.5
NILES	Basal	N	138	126	138	126	138	126	138	126	138	126	138	125	138	126	138	126
		$\bar{X}$	18.7	18.4	18.6	20.3	20.8	20.6	11.2	11.6	35.2	35.6	32.6	30.7	29.9	30.1	11.0	11.3
	Basal + Supplementary Remedial Teacher	N	124	115	124	115	124	115	124	115	124	115	123	115	124	115	124	115
		$\bar{X}$	18.3	20.4	17.3	21.6	21.5	22.2	10.4	12.8	34.9	37.6	32.7	34.6	28.4	28.6	9.1	10.6
	Readiness & Trade Books (Special Make)	N	136	108	136	108	136	108	136	108	136	108	135	107	136	108	136	108
		$\bar{X}$	18.6	20.3	18.7	22.3	21.9	21.4	9.8	12.0	35.6	37.4	37.1	36.2	29.8	29.5	11.4	12.0
	Remedial Teacher + Materials in #3 above	N	126	125	126	125	126	125	126	125	126	125	126	125	126	125	126	125
		$\bar{X}$	19.3	20.6	18.7	22.5	20.2	19.9	9.8	12.0	36.1	38.2	34.6	33.4	29.7	29.2	11.4	11.5

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PROJ			Stanford Word Readg		Stanford Parag Mean		Stanford Vocabulary		Stanford Spelling		Stanford Word Study		Stanford Arithmetic		Class Size--End		Pupil Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
R	1. English Program Based on Communication Skills	N	30	24	30	24	30	24	30	24	30	24	-	-	30	24	30	23
		X̄	13.7	16.3	11.6	13.5	15.9	16.7	5.1	7.8	27.2	30.8	-	-	24.2	23.2	9.1	9.1
E	2. Textbook Readiness Developing Auditory & Visual Discrimination	N	29	25	29	25	29	25	29	25	29	25	-	-	29	25	29	25
		X̄	15.5	14.2	10.4	11.2	19.8	17.4	6.4	5.6	27.8	29.8	-	-	25.0	24.5	8.3	7.7
I	3. Functional Readiness with Easy to Read Books	N	28	31	28	31	28	31	28	31	28	31	-	-	28	31	25	26
		X̄	13.3	14.6	12.5	13.6	17.3	17.4	5.3	7.4	26.5	29.0	-	-	22.5	22.8	10.2	11.1
D	4. Direct Teaching of Skills with Non-Word-Reading Activities	N	44	24	44	24	44	24	44	24	44	24	-	-	44	24	38	21
		X̄	15.0	14.7	11.3	12.3	18.2	16.4	7.1	6.6	30.0	28.1	-	-	22.3	20.7	9.4	9.4
	5. Combination #1 & #2 with 15 minutes Readiness Book & 20 minutes English Program	N	28	22	28	22	28	22	28	22	28	22	-	-	28	22	28	21
		X̄	14.6	14.9	10.9	12.3	16.7	17.0	4.5	6.3	28.2	28.8	-	-	24.2	25.3	10.2	11.1
	6. Combination #1 & #3 with 15 minutes Easy to Read & 20 minutes English Program	N	34	21	34	21	34	21	34	21	34	21	-	-	34	21	34	21
		X̄	13.9	14.5	10.1	12.2	18.2	18.4	5.4	7.0	27.1	28.1	-	-	25.1	24.5	10.1	10.5
	7. Combination #1 & #4 with 15 minutes Readiness Book & 20 minutes English Program	N	33	27	33	27	33	27	33	27	33	27	-	-	33	27	33	27
		X̄	14.5	14.0	9.8	12.1	16.8	16.7	4.4	7.5	27.8	28.4	-	-	22.9	21.7	8.8	8.1
		N																
		X̄																
		N																
		X̄																

PROJ			Stanford Word Readg		Stanford Parag Mean		Stanford Vocabulary		Stanford Spelling		Stanford Word Study		Stanford Arithmetic		Class Size--End		Pupil Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
RUDDELL	Basal - Allyn-Bacon	N	60	60	60	60	60	60	60	60	60	60	60	58	60	60	60	60
		$\bar{X}$	18.1	18.4	17.4	18.2	20.1	20.0	8.0	9.5	33.1	33.8	36.6	31.5	32.8	35.4	10.6	10.6
	Programmed - McGraw-Hill	N	51	46	51	46	51	46	51	46	51	46	50	45	51	46	50	46
		$\bar{X}$	20.5	20.9	14.8	16.6	19.1	18.6	8.7	9.7	32.6	32.9	30.4	30.7	33.3	33.7	10.2	12.3
	Basal - Allyn-Bacon + Language Structure Training (blocks)	N	44	67	44	67	44	67	44	67	44	67	42	66	44	67	44	67
		$\bar{X}$	16.6	16.0	12.9	13.5	18.5	16.5	6.9	8.1	29.2	30.6	33.5	29.8	38.2	39.3	8.1	10.8
	Programmed - McGraw-Hill + Language Structure Training	N	44	49	44	49	44	49	44	49	44	49	44	48	44	49	43	47
		$\bar{X}$	19.0	18.6	15.7	16.8	20.4	17.3	10.0	8.4	35.3	32.7	32.0	28.3	32.7	35.9	7.7	9.9
SCHNEYER	Basal - Scott-Foresman	N	170	164	170	164	170	164	170	164	170	164	-	-	170	164	170	164
		$\bar{X}$	18.1	19.8	17.3	20.2	20.3	21.6	10.1	12.3	34.5	37.5	-	-	31.7	31.9	12.0	10.5
	Linguistic - Fries	N	179	168	179	168	179	168	179	168	179	168	-	-	179	168	179	168
		$\bar{X}$	16.8	17.1	15.3	16.5	18.8	18.1	8.5	8.8	31.8	32.7	-	-	31.8	31.4	11.0	10.9
SHELDON	Basal - Ginn	N	73	70	73	70	73	70	73	70	73	70	73	70	73	70	73	69
		$\bar{X}$	20.3	22.1	21.4	23.6	25.8	24.3	13.1	14.3	40.0	42.5	46.0	45.3	24.2	23.7	9.1	8.4
	Modified Linguistic - L. W. Singer Co.	N	72	78	72	78	72	78	72	78	72	78	72	78	72	78	72	78
		$\bar{X}$	22.0	20.9	17.9	18.2	22.7	21.6	11.0	10.8	38.4	38.9	42.9	38.3	23.7	23.5	7.5	9.3
	Linguistic - Barnhart-Bloomfield	N	82	83	82	83	82	83	82	83	82	83	82	83	82	83	82	83
		$\bar{X}$	17.4	19.7	14.1	17.2	21.1	22.9	8.9	11.2	33.6	38.1	39.7	42.7	24.8	25.3	9.9	9.7

PROJ			Stanford Word Readg M	Stanford Word Readg F	Stanford Parag Mean M	Stanford Parag Mean F	Stanford Vocabulary M	Stanford Vocabulary F	Stanford Spelling M	Stanford Spelling F	Stanford Word Study M	Stanford Word Study F	Stanford Arithmetic M	Stanford Arithmetic F	Class Size--End M	Class Size--End F	Pupil Attendence M	Pupil Attendence F
SPACHE		N	327	372	327	372	327	372	327	372	327	372	321	365	327	372	326	371
		X̄	15.1	15.9	11.9	13.6	17.8	17.3	6.4	8.2	28.2	30.0	28.5	28.0	29.1	29.2	8.5	9.2
		N	327	295	327	295	327	295	237	295	327	295	307	285	327	295	327	295
		X̄	15.0	16.6	12.1	15.3	17.2	17.4	6.3	8.3	28.3	30.3	25.7	27.0	28.7	28.5	7.9	7.8
SPENCER	Individualized	N	96	123	96	123	96	123	96	123	96	123	96	123	96	123	96	123
		X̄	24.3	25.0	23.3	25.8	22.2	22.2	13.3	14.0	39.6	39.3	40.8	37.9	21.9	21.5	8.6	10.1
	Basal - Scott-Foresman	N	85	89	85	89	85	89	85	89	85	89	83	87	85	89	84	89
		X̄	19.1	19.9	17.8	21.1	19.4	19.6	8.7	11.0	33.0	34.3	34.4	34.2	19.1	17.9	7.9	9.4
STAUFFER	Language Experience	N	121	117	121	117	121	117	121	117	121	117	120	117	121	117	121	117
		X̄	18.4	20.2	17.8	20.8	19.9	19.4	9.8	11.9	34.4	36.1	30.9	31.8	28.3	29.0	10.5	10.1
	Basal	N	127	92	127	92	127	92	127	92	127	92	127	92	127	92	126	92
		X̄	15.0	17.1	14.6	17.3	17.7	19.2	7.8	10.3	31.5	35.9	34.4	38.0	25.8	25.6	10.7	11.0
TANYZER	Lippincott	N	106	80	106	80	106	80	106	80	106	80	105	80	106	80	106	80
		X̄	26.3	27.8	21.9	25.7	25.4	23.8	13.9	15.1	41.3	44.0	39.0	40.7	26.3	26.3	10.9	11.5
	Early to Read - Initial Teaching Alphabet	N	124	116	124	116	124	116	124	116	124	116	124	116	124	116	124	116
		X̄	24.3	26.3	21.7	25.0	22.0	23.1	10.9	13.0	40.4	43.7	40.6	42.0	27.1	26.9	12.1	10.9
	Basal - Scott-Foresman	N	118	110	118	110	118	110	118	110	118	110	117	110	117	110	117	110
		X̄	16.4	18.9	14.0	18.1	20.3	20.8	9.1	11.5	32.5	35.5	37.4	39.9	27.5	27.8	11.3	10.5

P R O J			Stanford Word Readg		Stanford Parag Mean		Stanford Vocabulary		Stanford Spelling		Stanford Word Study		Stanford Arithmetic		Class Size--End		Pupil Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
W	Lippincott - Chatto & Windus	N	89	114	89	114	89	114	89	114	89	114	83	113	89	114	89	114
Y		$\bar{X}$	26.5	28.1	23.8	27.3	24.8	24.7	14.1	15.6	41.3	43.8	41.0	40.7	21.3	21.2	8.1	9.5
A	Basal - Ability Grouping by Sex	N	115	106	115	106	115	106	115	106	115	106	111	103	115	106	115	106
T		$\bar{X}$	24.4	24.3	24.3	26.9	24.8	24.3	13.7	14.2	40.6	41.0	45.7	43.3	23.5	23.5	8.6	8.4
T	Basal - No Control Over Sex in Ability Grouping	N	87	123	87	123	87	123	87	123	87	123	80	111	87	123	87	123
		$\bar{X}$	22.1	23.6	21.9	25.3	24.7	23.5	12.8	13.7	39.4	41.0	45.8	44.3	23.0	22.7	7.8	9.4
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																
		N																
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		N																
		$\bar{X}$																
		N																
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PROJ			Teacher C.A.		Years Tchg Exper		1st Grade Tchg Exper		Attitude Basic		Attitude Individual		Attitude Language		No. Rooms in Building		Teacher Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
BOURDEAUX	Basal - Scott-Foresman	N	114	118	114	118	114	118	114	118	114	118	114	118	114	118	114	118
		$\bar{X}$	38.9	38.4	14.1	13.9	7.3	6.6	45.9	46.0	38.0	38.4	37.5	37.9	4.5	4.4	1.8	1.7
	Intensified Phonics	N	115	108	115	108	115	108	115	108	115	108	115	108	115	108	115	108
		$\bar{X}$	38.0	37.2	13.6	13.0	11.9	10.9	46.0	45.4	41.3	41.5	40.4	40.6	4.5	4.6	3.3	2.6
	Phonics with Sensory Experience	N	114	109	114	109	114	109	114	109	114	109	114	109	113	109	114	109
		$\bar{X}$	40.2	40.4	16.6	17.0	13.9	14.1	47.1	47.2	39.0	39.3	38.9	39.0	5.1	5.1	4.1	3.8
CHALL		N	88	100	88	100	88	100	-	-	-	-	-	-	88	100	87	100
		$\bar{X}$	38.5	39.4	12.2	13.3	11.0	12.1	-	-	-	-	-	-	6.6	6.6	9.7	9.5
CLELAND	Coordinated Language Experience	N	131	156	131	156	131	156	131	156	131	156	131	156	131	156	131	156
		$\bar{X}$	43.4	42.7	16.7	15.8	10.9	10.5	31.1	31.0	41.7	42.3	50.3	51.1	2.8	3.3	3.5	4.2
	Basal - Scott-Foresman	N	192	184	192	184	192	184	192	184	192	184	192	184	192	184	192	184
		$\bar{X}$	45.1	46.6	19.8	20.1	15.0	15.0	49.3	49.1	31.4	30.5	26.7	25.6	2.5	2.5	4.4	4.6
F	Diacritical Marking System	N	70	62	70	62	70	62	-	-	-	-	-	-	70	62	70	62
		$\bar{X}$	37.2	24.5	10.7	9.0	4.1	3.6	-	-	-	-	-	-	4.1	4.2	3.9	4.5
R	Initial Teaching Alphabet	N	71	63	71	63	71	63	-	-	-	-	-	-	71	63	71	63
		$\bar{X}$	41.9	40.0	12.5	11.8	8.7	9.1	-	-	-	-	-	-	3.1	3.3	6.6	6.4
Y	Basal - Sheldon Readers	N	55	55	55	55	55	55	-	-	-	-	-	-	55	55	55	55
		$\bar{X}$	31.6	30.7	5.7	5.1	2.2	2.4	-	-	-	-	-	-	4.3	4.3	3.9	3.8

PROJ			Teacher C.A.		Years Tchg Exper		1st Grade Tchg Exper		Attitude Basic		Attitude Individual		Attitude Language		No. Rooms in Building		Teacher Attendenc	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HAHN	Initial Teaching Alphabet	N	132	123	132	123	132	123	132	123	132	123	132	123	132	123	132	123
		X̄	42.5	42.4	14.6	14.5	7.6	7.6	39.9	40.0	43.5	43.7	40.9	40.9	2.6	2.7	4.4	4.6
	Language Experience	N	135	134	135	134	135	134	135	134	135	134	135	134	135	134	135	134
		X̄	35.1	38.4	8.4	10.5	5.5	6.6	34.7	35.6	45.3	44.8	47.9	48.0	3.4	3.1	5.7	5.9
	Basal	N	148	128	148	128	148	128	148	128	148	128	148	128	148	128	148	128
		X̄	43.6	43.7	13.0	13.7	9.9	10.2	44.3	44.5	38.7	39.3	33.7	34.5	3.3	3.4	5.1	5.3
HARRIS	Language Experience	N	178	179	178	179	178	179	178	179	178	179	178	179	178	179	167	163
		X̄	41.0	41.0	9.8	9.7	4.0	4.0	41.6	41.8	40.2	40.6	40.5	40.5	5.6	5.6	16.0	15.8
	Language Experience + Audio-Visual	N	170	173	170	173	170	173	170	173	170	173	170	173	170	173	145	145
		X̄	35.9	34.1	11.2	10.6	6.5	6.1	42.0	41.5	39.6	39.4	39.5	39.5	7.2	7.4	6.2	6.8
	Skills Centered Basal	N	170	162	170	162	170	162	170	162	170	162	170	162	170	162	170	162
		X̄	34.7	36.5	8.4	9.6	3.3	3.5	44.4	44.7	38.1	38.2	36.2	36.3	7.0	7.0	6.5	6.0
	Skills Centered Basal with Phonovisual Word Attack	N	164	180	164	180	164	180	164	180	164	180	164	180	164	180	164	180
		X̄	32.1	32.1	4.0	4.0	2.1	2.2	44.7	44.7	41.2	41.7	37.1	38.0	6.1	5.9	7.7	7.9
		N																
		X̄																
		N																
		X̄																

PROJ			Teacher C.A.		Years Tchg Exper		1st Grade Tchg Exper		Attitude Basic		Attitude Individual		Attitude Language		No. Rooms in Building		Teacher Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HAYES	Basal - Scott-Foresman	N	45	42	45	42	45	42	-	-	-	-	-	-	45	42	45	42
		$\bar{X}$	31.0	31.2	9.2	9.3	5.8	6.0	-	-	-	-	-	-	3.0	3.0	9.3	10.5
	Lippincott Basal with Filmstrips	N	53	46	53	46	53	46	-	-	-	-	-	-	53	46	53	46
		$\bar{X}$	34.3	32.6	6.5	6.0	4.6	4.2	-	-	-	-	-	-	3.0	3.0	5.2	5.4
	Scott-Foresman with Phonics and Word Power	N	50	53	50	53	50	53	-	-	-	-	-	-	50	53	50	53
		$\bar{X}$	42.4	42.5	15.6	15.2	11.8	11.7	-	-	-	-	-	-	2.4	2.4	3.6	3.7
	Initial Teaching Alphabet	N	44	52	44	52	44	52	-	-	-	-	-	-	44	52	44	52
		$\bar{X}$	31.0	30.4	7.7	7.2	7.0	6.6	-	-	-	-	-	-	2.7	2.8	2.5	2.5
HEILMAN	In-Service Teaching Program	N	157	144	157	144	157	144	-	-	-	-	-	-	157	144	157	144
		$\bar{X}$	44.6	45.1	15.0	13.9	8.9	8.6	-	-	-	-	-	-	3.0	2.7	4.7	3.8
	Control	N	141	137	141	137	141	137	-	-	-	-	-	-	141	137	141	127
		$\bar{X}$	45.5	43.8	15.0	16.2	12.7	13.6	-	-	-	-	-	-	2.8	2.6	8.5	8.8
HORN	Oral - Aural English	N	85	79	85	79	85	79	-	-	-	-	-	-	85	79	85	79
		$\bar{X}$	55.3	54.4	26.9	26.0	22.0	21.6	-	-	-	-	-	-	5.0	5.5	6.1	6.3
	Oral - Aural Spanish	N	96	73	96	73	96	73	-	-	-	-	-	-	96	73	96	73
		$\bar{X}$	48.3	46.7	19.2	17.8	13.3	12.2	-	-	-	-	-	-	5.7	6.0	5.6	6.1
	No Oral - Aural Spanish	N	85	84	85	84	85	84	-	-	-	-	-	-	85	84	85	84
		$\bar{X}$	56.8	56.9	28.5	29.6	21.9	22.2	-	-	-	-	-	-	4.6	4.8	6.0	5.3

PROJ			Teacher C.A.		Years Tchg Exper		1st Grade Tchg Exper		Attitude Basic		Attitude Individual		Attitude Language		No. Rooms in Building		Teacher Attendenc	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
KENDRICK	Language Experience	N	332	305	332	305	332	305	332	305	332	305	332	305	332	305	324	292
		X̄	40.6	41.3	11.4	11.8	7.5	8.0	28.9	28.9	44.0	44.7	46.4	46.5	3.4	3.5	4.5	4.5
	Basal - Ginn	N	354	298	354	298	354	298	354	298	354	298	354	298	354	298	354	298
		X̄	43.0	42.9	13.8	14.3	10.7	11.0	46.7	46.5	34.9	34.9	27.5	27.2	3.3	3.4	4.4	4.3
MACDONALD	Basal - Ability Grouping	N	102	88	102	88	102	88	90	83	90	83	90	83	102	88	102	88
		X̄	41.4	42.6	17.1	17.3	10.1	11.1	48.9	49.2	37.7	37.0	34.7	34.5	2.4	2.4	5.0	4.8
	Basal - One-to-One	N	81	83	81	83	81	83	81	83	81	83	81	83	81	83	81	83
		X̄	48.4	52.7	23.4	27.4	10.8	13.5	44.2	43.6	36.8	36.5	32.0	31.3	2.9	2.8	8.2	7.0
MANNING	Basal - Ginn	N	158	152	158	152	158	152	158	152	158	152	158	152	158	150	158	152
		X̄	37.8	38.9	6.5	7.0	4.6	5.1	49.8	50.0	36.0	35.4	37.6	36.5	2.3	2.1	1.3	1.2
	Visual & Auditory + Ginn	N	134	126	134	126	134	126	134	126	134	126	134	126	134	126	134	126
		X̄	37.6	39.6	9.7	10.9	7.1	8.0	47.0	47.5	41.2	41.7	32.5	31.3	3.1	3.1	4.6	4.0
	Written Language + Visual-Auditory + Ginn	N	128	130	128	130	128	130	128	130	128	130	128	130	128	130	128	130
		X̄	41.2	39.7	9.2	8.6	5.7	5.0	46.3	46.3	40.2	41.5	29.1	29.2	2.9	3.0	4.7	4.0
		N																
		X̄																
		N																
		X̄																

PROJ			Teacher C.A.		Years Tchg Exper		1st Grade Tchg Exper		Attitude Basic		Attitude Individual		Attitude Language		No. Rooms in Building		Teacher Attendence	
			M	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
SISTER MARITA		**N**	108	99	108	99	108	99	108	99	108	99	108	99	108	99	108	99
		X̄	35.8	34.1	13.5	12.0	11.8	10.5	41.4	40.7	44.0	44.3	37.0	36.4	2.5	2.6	11.1	9.9
		N	127	108	127	108	127	108	127	108	127	108	127	108	127	108	127	108
		X̄	44.1	45.5	18.0	19.1	9.8	10.5	41.5	40.8	38.4	38.8	29.6	29.0	2.7	2.9	4.6	4.4
		N	118	142	118	142	118	142	118	142	118	142	118	142	118	142	118	142
		X̄	40.9	38.7	17.1	14.4	12.3	9.0	34.2	34.2	42.0	41.2	40.4	39.4	3.1	3.3	5.3	5.3
MAZURK	Co-Basal + Writing	**N**	162	142	169	148	169	148	169	148	169	148	169	148	169	148	169	148
		X̄	39.4	38.8	13.9	13.9	10.2	9.6	44.6	44.5	32.9	33.4	35.1	35.4	2.4	2.4	5.1	5.8
	Initial Teaching Alphabet + Writing	**N**	180	150	180	150	180	150	180	150	180	150	180	150	180	150	180	150
		X̄	41.6	42.7	15.5	15.8	11.2	12.5	44.0	44.4	39.2	39.8	39.2	39.6	2.0	2.1	5.8	5.5
MCCANNE	Basal - American Book Co.	**N**	47	41	47	41	47	41	47	41	47	41	47	41	47	41	45	37
		X̄	52.2	53.8	22.5	25.0	15.5	18.6	45.5	45.2	42.5	42.6	37.6	38.5	3.0	3.3	1.0	1.0
	Teaching English As a Second Language	**N**	53	37	53	37	53	37	53	37	53	37	53	37	53	37	53	37
		X̄	48.2	48.6	20.4	19.2	8.2	8.8	45.3	45.2	37.2	38.0	35.8	35.6	2.4	2.2	7.5	6.9
	Language Experience	**N**	40	47	40	47	40	47	35	44	35	44	35	44	40	47	40	47
		X̄	43.8	41.6	18.6	15.7	13.5	11.0	44.5	42.9	44.2	42.5	40.7	41.0	2.3	2.3	2.9	4.9
		N																
		X̄																

PROJ			Teacher C.A.		Years Tchg Exper		1st Grade Tchg Exper		Attitude Basic		Attitude Individual		Attitude Language		No. Rooms in Buildng		Teacher Attendenc	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
MORRILL	Consultant Working with Teachers One-to-One Basis	N	158	173	158	173	158	173	-	-	-	-	-	-	158	173	158	173
		X̄	43.6	42.6	13.9	14.0	6.7	6.9	-	-	-	-	-	-	3.6	3.6	3.4	3.6
	Consultant Working with Teachers Group Situation	N	202	172	202	172	202	172	-	-	-	-	-	-	202	172	202	172
		X̄	35.5	36.6	9.6	10.2	6.1	6.4	-	-	-	-	-	-	3.7	3.8	4.9	4.5
MURPHY	Basal - Scott-Foresman	N	109	104	109	104	109	104	-	-	-	-	-	-	110	104	110	104
		X̄	43.8	42.8	16.9	15.7	13.0	12.0	-	-	-	-	-	-	2.8	2.9	4.9	4.6
	Scott-Foresman + Speech to Print Phonics + Visual	N	132	112	132	112	132	112	-	-	-	-	-	-	132	112	132	112
		X̄	50.2	50.2	22.0	22.3	15.7	15.4	-	-	-	-	-	-	2.9	2.9	1.8	2.0
	Scott-Foresman + Speech to Print Phonics + Writing	N	151	123	151	123	151	123	-	-	-	-	-	-	151	123	151	123
		X̄	36.7	37.3	12.1	12.5	12.2	12.5	-	-	-	-	-	-	3.8	3.8	1.8	2.2
NILES	Basal	N	138	126	138	126	138	126	-	-	-	-	-	-	138	126	138	126
		X̄	35.6	34.4	11.9	10.4	7.2	6.5	-	-	-	-	-	-	3.4	3.2	2.4	2.8
	Basal + Supplementary Remedial Teacher	N	124	115	124	115	124	115	-	-	-	-	-	-	124	115	124	115
		X̄	30.7	30.8	5.0	5.0	4.6	4.6	-	-	-	-	-	-	2.6	2.4	2.8	2.9
	Readiness & Trade Books (Special Make)	N	136	108	136	108	136	108	-	-	-	-	-	-	136	108	136	107
		X̄	34.0	35.4	5.0	5.8	3.8	4.2	-	-	-	-	-	-	3.0	2.9	6.0	5.7
	Remedial Teacher + Materials in #3 above	N	126	125	126	125	126	125	-	-	-	-	-	-	126	125	126	125
		X̄	37.3	37.3	11.3	11.5	9.1	9.1	-	-	-	-	-	-	3.2	3.1	5.4	5.1

PROJ			Teacher C.A.		Years Tchg Exper		1st Grade Tchg Exper		Attitude Basic		Attitude Individual		Attitude Language		No. Rooms n Building		Teacher Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	1. English Program Based on Communication Skills	N	30	24	30	24	30	24	-	-	-	-	-	-	30	24	30	24
R		$\bar{X}$	35.3	31.0	12.5	7.8	5.8	3.9	-	-	-	-	-	-	2.4	2.4	9.4	7.0
	2. Textbook Readiness Developing Auditory & Visual Discrimination	N	29	25	29	25	29	25	-	-	-	-	-	-	29	25	29	25
E		$\bar{X}$	23.4	23.1	1.1	1.2	1.0	1.0	-	-	-	-	-	-	3.9	3.7	2.3	3.2
	3. Functional Readiness With Easy to Read Books	N	28	31	28	31	28	31	-	-	-	-	-	-	28	31	28	31
I		$\bar{X}$	44.9	42.6	13.4	13.3	12.6	12.9	-	-	-	-	-	-	3.0	3.3	6.4	6.2
	4. Direct Teaching of Skills with Non-Word-Reading Activities	N	44	24	44	24	44	24	-	-	-	-	-	-	44	24	44	24
		$\bar{X}$	33.3	26.3	7.7	3.0	6.0	2.7	-	-	-	-	-	-	3.1	3.4	3.7	3.3
D	5. Combination #1 & #2 with 15 minutes Readiness Book & 20 minutes English Program	N	28	22	28	22	28	22	-	-	-	-	-	-	28	22	28	22
		$\bar{X}$	39.4	36.3	15.0	14.0	10.1	8.0	-	-	-	-	-	-	3.0	2.9	4.1	4.7
	6. Combination #1 & #3 with 15 minutes Easy to Read & 20 minutes English Program	N	34	21	34	21	34	21	-	-	-	-	-	-	34	21	34	21
		$\bar{X}$	40.2	37.9	17.3	14.9	15.4	10.3	-	-	-	-	-	-	2.7	2.8	9.2	10.6
	7. Combination #1 & #4 with 15 minutes Readiness Book & 20 minutes English Program	N	33	27	33	27	33	27	-	-	-	-	-	-	33	27	33	27
		$\bar{X}$	39.4	37.4	14.7	12.4	11.5	8.0	-	-	-	-	-	-	2.3	2.6	2.2	2.4
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																

PROJ			Teacher C.A.		Years Tchg Exper		1st Grade Tchg Exper		Attitude Basic		Attitude Individual		Attitude Language		No. Rooms in Building		Teacher Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
RUDDELL	Basal - Allyn-Bacon	N	60	60	60	60	60	60	-	-	53	57	1	2	60	60	60	60
		$\bar{X}$	46.7	38.7	17.3	12.2	16.5	11.1	-	-	8.9	12.5	2.0	20.0	2.7	2.6	6.9	3.8
	Programmed - McGraw-Hill	N	51	46	51	46	51	46	5	4	38	31	3	-	51	46	51	46
		$\bar{X}$	40.7	41.9	8.8	9.0	2.7	2.8	16.4	28.2	17.1	23.3	9.3	-	2.6	2.7	3.1	3.4
	Basal - Allyn-Bacon + Language Structure Training (blocks)	N	44	67	44	67	44	67	-	-	37	65	4	9	44	67	44	67
		$\bar{X}$	43.3	38.2	17.5	13.4	7.4	6.4	-	-	9.7	11.2	3.8	6.8	3.0	2.9	4.3	4.1
	Programmed - McGraw-Hill + Language Structure Training	N	44	49	44	49	44	49	-	-	29	27	4	2	44	49	39	41
		$\bar{X}$	33.0	32.8	9.2	9.0	5.9	5.9	-	-	11.5	16.0	2.5	1.0	2.6	2.8	5.2	4.7
SCHNEYER	Basal - Scott-Foresman	N	170	164	170	164	170	164	170	164	170	164	170	164	170	164	170	164
		$\bar{X}$	45.8	45.5	18.9	19.5	13.8	14.1	48.8	48.8	37.9	38.3	35.7	35.6	3.4	3.7	5.5	5.8
	Linguistic - Fries	N	179	168	179	168	179	168	179	168	179	168	179	168	179	168	179	168
		$\bar{X}$	43.6	43.3	12.9	12.2	8.3	7.7	45.7	45.7	37.7	37.6	36.5	37.0	4.5	4.5	6.4	6.2
SHELDON	Basal - Ginn	N	73	70	73	70	73	70	73	70	73	70	73	70	73	70	73	70
		$\bar{X}$	45.3	43.0	18.1	15.3	14.9	12.8	47.4	46.6	38.6	38.8	34.0	34.7	3.1	3.3	4.3	4.1
	Modified Linguistic - L. W. Singer Co.	N	72	78	72	78	72	78	72	78	72	78	72	78	72	78	72	78
		$\bar{X}$	39.0	36.7	8.9	8.7	7.0	7.3	46.4	46.6	37.9	37.4	35.7	34.4	3.7	3.8	5.2	6.6
	Linguistic - Barnhart-Bloomfield	N	82	83	82	83	82	83	82	83	82	83	82	83	82	83	82	83
		$\bar{X}$	42.6	43.5	11.6	13.0	6.5	6.7	42.7	42.3	41.8	41.3	41.6	40.8	4.1	4.2	2.7	2.4

PROJ			Teacher C.A.		Years Tchg Exper		1st Grade Tchg Exper		Attitude Basic		Attitude Individual		Attitude Language		No. Rooms in Building		Teacher Attendence	
			M	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**	**M**	**F**
SPACHE		**N**	327	372	327	372	327	372	-	-	-	-	-	-	327	372	327	372
		$\bar{X}$	34.6	35.3	10.6	11.4	6.1	6.8	-	-	-	-	-	-	5.4	5.6	4.1	4.0
		N	327	295	327	295	327	295	-	-	-	-	-	-	327	295	327	295
		$\bar{X}$	39.8	40.5	13.6	14.3	9.8	10.2	-	-	-	-	-	-	4.9	5.0	4.6	4.7
SPENCER	Individualized	**N**	96	123	96	123	96	123	-	-	-	-	-	-	96	123	96	123
		$\bar{X}$	46.0	45.3	16.3	16.2	12.3	12.4	-	-	-	-	-	-	1.9	2.0	1.6	1.5
	Basal - Scott-Foresman	**N**	85	89	85	89	85	89	-	-	-	-	-	-	85	89	84	89
		$\bar{X}$	44.9	45.5	14.4	14.0	10.1	10.4	-	-	-	-	-	-	2.0	1.9	2.9	2.6
STAUFFER	Language Experience	**N**	121	117	121	117	121	117	-	-	-	-	-	-	121	117	121	117
		$\bar{X}$	43.6	45.5	19.0	21.5	16.0	18.5	-	-	-	-	-	-	3.6	3.5	1.9	2.0
	Basal	**N**	127	92	127	92	127	92	-	-	-	-	-	-	127	92	127	92
		$\bar{X}$	45.3	47.6	17.6	18.9	11.8	13.0	-	-	-	-	-	-	5.0	5.0	5.2	5.9
TANYZER	Lippincott	**N**	106	80	106	80	106	80	-	-	-	-	-	-	106	80	106	80
		$\bar{X}$	31.9	30.9	6.7	6.2	4.4	4.2	-	-	-	-	-	-	8.0	8.0	7.2	7.6
	Early to Read - Initial Teaching Alphabet	**N**	124	116	124	116	124	116	-	-	-	-	-	-	124	116	124	116
		$\bar{X}$	27.4	26.7	4.0	3.8	1.3	1.3	-	-	-	-	-	-	5.0	5.0	9.0	8.6
	Basal - Scott-Foresman	**N**	118	110	118	110	118	110	-	-	-	-	-	-	118	110	117	110
		$\bar{X}$	36.9	34.7	8.5	7.5	4.2	3.7	-	-	-	-	-	-	2.8	3.0	6.7	6.4

PROJ			Teacher C.A.		Years Tchg Exper		1st Grade Tchg Exper		Attitude Basic		Attitude Individual		Attitude Language		No. Rooms in Buildng		Teacher Attendence	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
W	Lippincott - Chatto & Windus	N	89	114	89	114	89	114	89	114	89	114	89	114	89	114	89	114
Y		$\bar{X}$	40.0	39.0	13.3	13.5	9.4	9.7	39.9	40.0	36.5	36.8	33.9	34.3	4.2	4.3	3.8	3.8
A	Basal - Ability Grouping by Sex	N	115	106	115	106	115	106	115	106	115	106	115	106	115	106	115	106
T		$\bar{X}$	39.1	39.5	11.0	10.5	9.0	8.3	42.2	42.5	39.7	40.2	35.2	35.9	3.4	3.4	3.2	3.1
T	Basal - No Control Over Sex in Ability Grouping	N	87	123	87	123	87	123	87	123	87	123	87	123	87	123	87	123
		$\bar{X}$	37.0	38.5	9.9	9.8	6.7	6.2	39.6	39.7	37.6	37.3	36.3	36.5	3.5	3.4	4.5	4.3
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																
		N																
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		N																
		$\bar{X}$																
		N																
		$\bar{X}$																

PROJ			Gilmore Accuracy		Gilmore Rate		Fry		Gates		Karlsen		Mechanics Ratio Scale		Words Spelled Correctly		Running Words	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
BORDEAUX	Basal - Scott-Foresman	N	18	19	18	19	19	19	19	19	19	18	16	19	16	19	16	19
		$\bar{X}$	15.4	22.2	46.1	58.1	2.7	5.5	7.8	11.3	5.5	9.8	42.5	58.0	9.2	17.8	12.1	21.0
	Intensified Phonics	N	19	18	19	18	19	18	19	18	17	18	20	18	20	18	20	18
		$\bar{X}$	20.3	22.1	48.3	56.0	7.0	7.4	10.8	11.7	10.2	10.1	49.3	59.9	9.8	13.7	11.7	15.5
	Phonics with Sensory Experience	N	21	18	21	18	21	18	21	18	21	19	21	18	21	18	21	18
		$\bar{X}$	18.4	27.6	49.1	70.1	7.5	11.5	10.9	16.4	10.0	15.8	38.0	57.8	11.7	22.4	15.0	26.4
CHALL		N	28	36	28	36	72	85	74	90	-	-	-	-	-	-	-	-
		$\bar{X}$	13.4	18.2	272.5	385.9	2.7	3.7	8.6	9.7	-	-	-	-	-	-	-	-
CLELAND	Coordinated Language Experience	N	131	156	131	156	131	156	131	156	131	156	131	156	131	156	131	156
		$\bar{X}$	4.8	5.0	12.9	14.0	2.2	1.9	3.3	2.8	2.9	2.8	19.2	10.0	4.2	4.3	4.7	5.0
	Basal - Scott-Foresman	N	192	184	192	184	192	184	192	184	192	184	192	184	192	184	192	184
		$\bar{X}$	2.8	3.3	8.8	10.1	1.0	1.1	1.8	2.0	1.6	1.8	8.8	9.0	3.5	3.3	4.1	3.8
FRY	Diacritical Marking System	N	20	18	18	11	20	18	20	18	-	-	21	16	21	16	21	16
		$\bar{X}$	15.0	24.6	39.0	57.2	3.0	6.3	8.6	11.6	-	-	55.3	54.9	11.2	13.4	17.1	19.0
	Initial Teaching Alphabet	N	23	14	23	14	23	14	23	14	-	-	21	15	21	15	21	15
		$\bar{X}$	18.0	30.8	32.3	64.7	9.5	13.0	11.6	18.1	-	-	30.0	38.8	15.3	23.4	38.6	51.0
	Basal - Sheldon Readers	N	12	15	12	15	12	15	12	15	-	-	12	15	12	15	12	15
		$\bar{X}$	16.7	29.7	46.7	70.3	3.6	6.9	10.2	13.9	-	-	62.2	63.0	14.9	20.3	19.4	23.6

PROJ			Gilmore Accuracy		Gilmore Rate		Fry		Gates		Karlsen		Mechanics Ratio Scale		Words Spelled Correctly		Running Words	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HAHN	Initial Teaching Alphabet	N	23	23	23	23	23	23	23	23	23	23	-	-	-	-	-	-
		X̄	23.8	25.4	61.7	61.7	17.6	15.8	19.5	19.2	19.2	18.3	-	-	-	-	-	-
	Language Experience	N	31	20	31	20	31	20	31	20	31	20	-	-	-	-	-	-
		X̄	21.1	26.8	61.1	76.3	9.9	12.7	13.8	16.9	13.0	16.6	-	-	-	-	-	-
	Basal	N	24	26	24	26	24	26	24	26	24	26	-	-	-	-	-	-
		X̄	24.0	25.7	64.4	70.6	10.9	10.0	15.8	15.5	15.2	14.8	-	-	-	-	-	-
HARRIS	Language Experience	N	23	25	23	25	23	25	23	25	23	25	21	23	21	23	21	23
		X̄	14.9	15.0	290.9	300.0	.7	.8	6.0	5.5	2.1	2.9	56.4	52.9	23.1	15.2	16.0	18.5
	Language Experience + Audio-Visual	N	23	24	23	24	23	24	23	24	23	24	21	22	21	22	21	22
		X̄	16.0	14.7	314.3	277.5	2.4	1.5	6.3	5.1	3.4	3.2	57.5	51.2	14.0	15.8	17.7	19.5
	Skills Centered Basal	N	23	25	23	25	23	25	23	25	23	25	21	23	21	23	21	23
		X̄	17.2	19.2	396.0	383.5	3.5	3.6	8.3	8.6	5.2	7.2	48.0	53.1	14.2	14.0	18.3	17.4
	Skills Centered Basal with Phonovisual Word Attack	N	25	23	25	23	25	23	25	23	25	23	22	19	22	19	22	19
		X̄	17.9	18.8	354.0	459.1	2.6	1.8	7.7	8.2	5.8	5.0	53.0	61.6	15.0	16.6	17.9	21.2
		N																
		X̄																
		N																
		X̄																

PROJ			Gilmore Accuracy		Gilmore Rate		Fry		Gates		Karlsen		Mechanics Ratio Scale		Words Spelled Correctly		Running Words	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
HAYES	Basal - Scott-Foresman	N	15	15	15	15	15	15	15	15	-	-	-	-	-	-	-	-
		$\bar{X}$	18.7	19.6	56.2	74.2	3.1	4.5	10.7	12.0	-	-	-	-	-	-	-	-
	Lippincott Basal with Filmstrips	N	16	14	16	14	16	14	16	14	-	-	-	-	-	-	-	-
		$\bar{X}$	16.4	30.6	44.7	81.7	12.4	21.7	16.1	25.5	-	-	-	-	-	-	-	-
	Scott-Foresman with Phonics and Word Power	N	15	15	15	15	15	15	15	15	-	-	-	-	-	-	-	-
		$\bar{X}$	18.5	21.2	61.6	61.0	5.1	3.5	10.1	10.7	-	-	-	-	-	-	-	-
	Initial Teaching Alphabet	N	15	15	15	15	15	15	15	15	-	-	-	-	-	-	-	-
		$\bar{X}$	21.3	28.0	65.2	90.8	14.9	20.7	19.9	23.9	-	-	-	-	-	-	-	-
HEILMAN	In-Service Teaching Program	N	-	-	-	-	18	15	18	15	18	15	-	-	-	-	-	-
		$\bar{X}$	-	-	-	-	11.4	13.4	16.1	16.1	15.7	18.0	-	-	-	-	-	-
	Control	N	-	-	-	-	15	18	15	18	15	18	-	-	-	-	-	-
		$\bar{X}$	-	-	-	-	9.8	13.1	14.5	16.7	15.7	17.2	-	-	-	-	-	-
HORN	Oral - Aural English	N	19	19	19	19	19	19	19	19	-	-	-	-	-	-	-	-
		$\bar{X}$	4.4	9.3	219.1	297.8	.1	1.2	3.6	4.8	-	-	-	-	-	-	-	-
	Oral - Aural Spanish	N	13	16	13	16	13	16	13	16	-	-	-	-	-	-	-	-
		$\bar{X}$	6.6	11.4	225.2	278.5	1.7	2.5	3.5	5.7	-	-	-	-	-	-	-	-
	No Oral - Aural Spanish	N	20	15	20	15	20	15	20	15	-	-	-	-	-	-	-	-
		$\bar{X}$	11.2	17.9	399.1	447.2	1.8	4.4	6.1	10.1	-	-	-	-	-	-	-	-

PROJ			Gilmore Accuracy		Gilmore Rate		Fry		Gates		Karlsen		Mechanics Ratio Scale		Words Spelled Correctly		Running Words	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
KENDRICK	Language Experience	N	24	25	24	25	24	25	24	25	24	25	17	20	17	20	17	20
		$\bar{X}$	14.6	20.1	29.1	38.6	4.0	5.6	9.3	11.5	7.0	9.7	61.6	69.9	19.8	33.1	22.4	38.6
	Basal - Ginn	N	25	24	25	24	25	24	25	24	25	24	17	22	17	22	17	22
		$\bar{X}$	13.0	16.2	34.8	35.7	3.9	6.0	9.8	11.3	8.0	9.0	55.6	57.9	17.9	23.1	20.6	26.9
MACDONALD	Basal - Ability Grouping	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		$\bar{X}$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Basal - One-to-One	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		$\bar{X}$	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MANNING	Basal - Ginn	N	30	36	30	36	31	38	30	39	31	35	150	133	150	133	150	133
		$\bar{X}$	13.2	16.8	53.0	55.3	1.4	2.4	8.5	9.0	4.5	6.0	41.3	50.2	10.7	13.1	12.2	14.4
	Visual & Auditory + Ginn	N	30	27	30	26	31	27	30	26	31	27	124	113	124	113	124	113
		$\bar{X}$	18.2	20.6	55.4	66.4	5.0	5.7	12.3	12.7	9.2	10.3	62.8	63.4	15.8	21.5	18.7	25.0
	Written Language + Visual-Auditory + Ginn	N	30	21	30	21	29	21	30	21	29	21	121	122	121	122	121	122
		$\bar{X}$	18.0	22.1	59.3	89.7	5.6	4.2	12.4	12.6	8.4	8.5	72.3	73.4	19.0	21.6	19.6	23.7
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																

PROJ			Gilmore Accuracy		Gilmore Rate		Fry		Gates		Karlsen		Mechanics Ratio Scale		Words Spelled Correctly		Running Words	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
SISTER MARITA		N	34	17	34	17	34	16	34	16	34	16	98	95	98	95	98	95
		$\bar{X}$	19.8	25.5	108.0	123.5	4.8	7.5	11.3	15.0	10.2	15.7	57.2	67.2	16.4	19.1	19.9	22.6
		N	33	25	33	25	31	24	32	25	32	24	111	96	111	96	111	96
		$\bar{X}$	18.9	24.0	91.8	126.4	4.9	7.4	11.7	14.3	9.7	13.1	61.9	67.7	20.3	24.6	25.7	29.5
		N	35	34	35	34	33	31	34	32	33	33	92	122	92	123	92	123
		$\bar{X}$	23.0	27.1	103.0	120.4	7.5	9.4	15.4	15.5	14.4	14.9	58.2	64.1	18.3	21.3	22.6	28.4
MAZURK	Co-Basal + Writing	N	12	13	12	13	12	13	12	13	12	13	11	13	11	13	11	13
		$\bar{X}$	26.0	24.2	54.2	58.8	14.2	12.8	16.6	17.6	16.8	16.2	49.2	45.2	25.5	27.7	33.0	35.9
	Initial Teaching Alphabet + Writing	N	17	16	17	16	17	16	17	16	16	16	16	15	16	15	16	15
		$\bar{X}$	20.8	22.9	75.1	70.5	18.3	15.9	16.8	16.8	17.3	18.4	20.6	34.0	18.1	16.0	41.3	40.2
MCCANNE	Basal - American Book Co.	N	19	18	16	17	20	21	20	20	20	18	46	41	46	41	46	41
		$\bar{X}$	14.5	16.8	61.6	62.6	5.6	2.4	10.4	9.7	8.3	4.7	40.3	42.9	16.1	20.9	20.2	25.4
	Teaching English as a Second Language	N	25	13	17	10	27	15	26	15	24	14	51	37	51	37	51	37
		$\bar{X}$	11.9	20.0	65.6	79.8	5.8	10.6	8.8	12.5	10.1	15.5	47.9	53.9	20.6	25.2	25.0	28.9
	Language Experience	N	18	20	13	20	19	22	18	22	17	16	39	46	39	46	39	46
		$\bar{X}$	11.4	15.8	58.6	61.8	6.4	5.6	9.3	10.0	7.8	7.7	43.4	49.2	25.0	27.9	27.7	30.5
		N																
		$\bar{X}$																

PROJ			Gilmore Accuracy		Gilmore Rate		Fry		Gates		Karlsen		Mechanics Ratio Scale		Words Spelled Correctly		Running Words	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
MORRILL	Consultant Working with Teachers One-to-One Basis	N	28	9	28	9	28	10	28	10	28	10	27	10	27	10	27	10
		$\bar{X}$	29.9	30.9	75.1	82.0	12.2	14.3	19.7	18.4	18.6	19.0	51.8	44.0	21.7	26.4	29.7	35.7
	Consultant Working with Teachers Group Situation	N	20	25	21	26	21	28	21	27	21	28	21	28	21	28	21	28
		$\bar{X}$	23.1	32.1	57.9	87.0	9.7	15.5	13.1	18.7	12.9	20.5	41.2	52.8	17.6	23.9	24.4	28.7
MURPHY	Basal - Scott-Foresman	N	26	22	26	22	26	22	26	22	16	14	106	102	106	102	106	102
		$\bar{X}$	30.5	31.3	57.3	66.0	14.3	13.0	18.3	16.1	15.1	13.1	61.3	62.0	18.3	19.1	23.1	23.9
	Scott-Foresman + Speech to Print Phonics + Visual	N	29	20	29	20	29	20	29	20	28	20	131	109	131	109	131	109
		$\bar{X}$	32.5	33.7	57.4	60.6	22.2	21.7	23.7	22.9	24.8	24.1	54.9	64.8	16.7	22.4	22.0	28.2
	Scott-Foresman + Speech to Print Phonics + Writing	N	29	21	29	21	29	21	29	21	29	21	132	108	132	108	132	108
		$\bar{X}$	23.9	27.6	54.2	56.2	18.9	20.6	19.7	22.6	22.6	25.1	49.1	57.8	18.7	24.4	24.7	30.7
NILES	Basal	N	23	29	23	29	64	66	64	66	23	29	21	29	21	29	21	29
		$\bar{X}$	20.9	24.0	45.1	52.2	2.1	2.7	7.7	9.3	9.0	8.7	57.2	57.1	21.3	28.4	24.2	33.8
	Basal + Supplementary Remedial Teacher	N	26	29	26	29	66	54	66	55	26	29	23	27	23	27	23	27
		$\bar{X}$	19.6	23.9	47.3	55.1	1.9	2.8	7.9	9.4	5.9	8.4	48.6	61.7	20.1	32.0	25.0	35.6
	Readiness & Trade Books (Special Make)	N	24	26	24	26	71	48	71	48	24	26	28	22	28	22	28	22
		$\bar{X}$	25.0	28.3	47.7	59.0	3.3	5.5	8.5	10.5	9.4	12.3	63.5	62.5	30.5	23.6	26.9	28.7
	Remedial Teacher + Materials in #3 above	N	25	27	25	28	67	56	67	56	25	27	23	27	23	27	23	27
		$\bar{X}$	22.8	25.8	50.2	58.1	4.4	5.1	9.9	10.7	9.4	12.3	51.1	62.9	22.7	32.3	26.7	37.3

PROJ			Gilmore Accuracy		Gilmore Rate		Fry		Gates		Karlsen		Mechanics Ratio Scale		Words Spelled Correctly		Running Words	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
REID	1. English Program Based on Communication Skills	N	14	4	14	4	13	3	14	4	14	4	13	5	13	5	13	5
		X̄	4.4	13.0	34.6	39.0	1.4	3.3	6.3	9.7	3.9	7.5	57.7	69.2	20.1	30.8	30.2	33.4
	2. Textbook Readiness Developing Auditory & Visual Discrimination	N	9	10	9	10	9	10	9	10	9	10	9	10	9	10	9	10
		X̄	7.8	3.7	35.3	30.5	.9	1.0	7.7	6.0	2.8	3.5	54.8	54.2	18.3	16.8	27.4	20.5
	3. Functional Readiness with Easy to Read Books	N	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
		X̄	5.1	10.1	27.2	41.2	.6	.9	5.6	7.0	3.2	4.8	75.2	75.2	20.0	75.1	24.2	22.4
	4. Direct Teaching of Skills with Non-Word-Reading Activities	N	13	6	13	6	13	6	13	6	13	6	12	5	12	5	12	5
		X̄	3.1	3.0	21.5	33.8	.4	0	5.4	4.8	3.3	2.5	48.0	42.0	17.7	20.2	21.0	23.2
	5. Combination #1 & #2 with 15 minutes Readiness Book & 20 minutes English Program	N	11	9	11	9	11	9	11	9	11	9	11	9	11	9	11	9
		X̄	3.1	5.2	27.3	40.7	.5	.3	5.8	7.6	3.2	4.2	62.8	66.2	17.5	18.1	20.2	20.3
	6. Combination #1 & #3 with 15 minutes Easy to Read & 20 minutes English Program	N	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
		X̄	7.0	6.0	35.1	45.5	2.6	.6	6.7	6.3	3.5	3.2	69.4	50.2	27.1	29.5	30.6	32.7
	7. Combination #1 & #4 with 15 minutes Readiness Book & 20 minutes English Program	N	11	5	11	5	11	5	11	5	11	5	9	5	9	5	9	5
		X̄	2.0	4.8	22.6	24.2	0	.6	5.3	5.8	2.5	2.6	67.1	68.4	13.2	12.4	16.2	13.8
		N																
		X̄																
		N																
		X̄																

PROJ			Gilmore Accuracy		Gilmore Rate		Fry		Gates		Karlsen		Mechanics Ratio Scale		Words Spelled Correctly		Running Words	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
RUDDELL	Basal - Allyn-Bacon	N	21	20	21	20	21	20	21	20	-	-	55	53	55	53	55	53
		$\overline{X}$	19.0	19.2	52.5	55.5	6.9	5.5	13.0	10.0	-	-	52.8	62.5	14.8	16.5	16.7	19.2
	Programmed - McGraw-Hill	N	20	14	20	14	20	14	20	14	-	-	46	43	46	43	46	43
		$\overline{X}$	15.5	14.2	41.7	43.3	8.4	7.4	10.6	10.1	-	-	55.9	56.9	14.8	18.6	17.4	20.6
	Basal - Allyn-Bacon + Language Structure Training (blocks)	N	14	18	14	18	14	18	13	16	44	67	39	63	39	63	39	63
		$\overline{X}$	14.6	15.1	48.4	51.8	1.7	2.0	9.9	9.4	10.2	10.2	59.9	58.9	14.5	18.7	16.5	20.4
	Programmed - McGraw-Hill + Language Structure Training	N	15	19	15	19	15	19	14	19	44	49	40	43	40	43	40	43
		$\overline{X}$	13.6	17.8	38.1	62.6	9.1	10.2	11.4	13.2	16.1	12.0	56.7	50.6	20.0	18.5	21.5	19.7
SCHNEYER	Basal - Scott-Foresman	N	21	24	21	24	21	24	21	23	21	24	20	23	20	23	20	23
		$\overline{X}$	20.2	28.0	54.0	66.7	4.9	8.9	9.9	13.1	8.6	12.8	60.8	58.7	17.9	26.2	19.9	31.2
	Linguistic - Fries	N	16	29	16	29	16	29	16	29	16	29	16	26	16	26	16	26
		$\overline{X}$	13.6	21.8	30.4	53.4	3.0	6.9	5.7	10.4	3.8	9.7	70.3	66.0	24.1	38.6	27.1	43.0
SHELDON	Basal - Ginn	N	15	20	15	20	15	20	15	20	15	20	15	20	15	20	15	20
		$\overline{X}$	25.2	27.7	61.2	64.2	6.5	6.6	12.6	13.4	11.7	12.3	53.1	63.9	19.0	21.2	23.7	26.5
	Modified Linguistic - L. W. Singer Co.	N	13	21	13	21	13	20	13	20	13	20	14	20	13	20	13	20
		$\overline{X}$	21.6	23.5	32.9	42.1	10.4	10.6	12.5	12.9	11.6	13.2	46.3	57.4	23.5	30.9	29.9	39.0
	Linguistic - Barnhart-Bloomfield	N	17	19	17	19	17	19	17	19	17	19	17	19	17	19	17	19
		$\overline{X}$	14.9	18.1	42.7	51.2	8.9	8.4	11.3	11.2	8.9	10.0	55.5	61.8	22.9	16.9	28.6	21.5

PROJ			Gilmore Accuracy		Gilmore Rate		Fry		Gates		Karlsen		Mechanics Ratio Scale		Words Spelled Correctly		Running Words	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
SPACHE		N	31	26	31	26	-	-	47	43	47	43	14	8	14	8	14	8
		$\overline{X}$	20.6	21.2	43.5	51.7	-	-	9.1	10.6	5.2	7.9	59.5	63.6	15.0	15.5	18.3	20.5
		N	35	20	35	20	-	-	43	34	43	34	10	7	10	7	10	7
		$\overline{X}$	20.3	24.6	52.7	51.9	-	-	10.4	11.0	7.1	8.3	45.0	60.7	14.5	15.4	12.5	21.3
SPENCER	Individualized	N	95	121	95	121	22	27	91	121	22	27	21	24	21	24	20	24
		$\overline{X}$	32.3	34.3	56.4	62.4	17.6	16.4	34.2	37.2	19.9	20.5	59.8	68.9	32.0	41.6	38.8	31.6
	Basal - Scott-Foresman	N	82	85	82	85	20	20	83	87	20	20	19	21	19	21	19	21
		$\overline{X}$	20.7	24.7	57.5	65.5	8.0	10.8	22.9	24.6	12.7	15.5	66.9	66.6	22.8	34.3	28.9	27.3
STAUFFER	Language Experience	N	19	15	19	15	19	15	19	15	19	15	20	14	20	14	20	14
		$\overline{X}$	20.8	29.5	54.3	62.5	9.4	14.2	13.6	19.1	15.6	22.1	107.2	72.4	35.1	38.1	32.4	44.9
	Basal	N	20	19	20	19	20	19	20	19	20	19	20	19	20	19	20	19
		$\overline{X}$	14.4	19.8	49.1	58.4	2.3	2.6	9.1	11.0	6.0	6.3	54.0	45.7	21.4	16.1	24.7	17.9
TANYZER	Lippincott	N	8	6	8	6	8	6	8	6	8	6	8	4	8	4	8	4
		$\overline{X}$	29.4	34.3	68.9	71.0	19.4	20.5	19.1	22.2	22.5	27.5	63.5	63.7	29.9	32.2	37.0	38.2
	Early to Read - Initial Teaching Alphabet	N	8	10	8	10	8	10	8	10	8	10	8	9	7	9	7	9
		$\overline{X}$	35.9	36.5	53.5	51.0	19.1	29.4	22.9	24.6	24.1	28.1	49.2	60.2	53.3	31.9	57.0	41.7
	Basal - Scott-Foresman	N	9	8	9	8	9	8	9	8	9	8	8	8	8	8	8	8
		$\overline{X}$	18.1	29.4	36.6	56.4	2.2	5.6	8.0	12.0	4.8	11.1	66.0	71.6	17.1	24.9	19.0	28.6

PROJ			Gilmore Accuracy		Gilmore Rate		Fry		Gates		Karlsen		Mechanics Ratio Scale		Words Spelled Correctly		Running Words	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
W	Lippincott - Chatto & Windus	N	25	25	25	25	25	25	25	25	-	-	25	25	25	25	25	25
Y		$\bar{X}$	30.6	37.2	53.3	57.6	18.1	19.2	19.2	21.8	-	-	71.9	70.4	31.6	33.2	39.3	39.9
A	Basal - Ability Grouping by Sex	N	25	25	25	25	25	25	25	25	-	-	25	25	25	25	25	25
T		$\bar{X}$	29.3	31.2	57.4	53.3	10.0	10.7	15.5	16.0	-	-	66.3	67.4	30.0	26.5	37.3	32.6
T	Basal - No Control Over Sex in Ability Grouping	N	25	25	25	25	25	25	25	25	-	-	25	25	25	25	25	25
		$\bar{X}$	29.9	31.1	53.8	61.2	9.0	11.6	14.4	16.6	-	-	73.4	72.7	27.7	29.7	31.8	37.1
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																
		N																
		$\bar{X}$																

APPENDIX B

ANALYSIS OF DIFFERENTIAL TREATMENT EFFECTS FOR SUBJECTS OF VARYING LEVELS OF LETTER KNOWLEDGE AND AUDITORY DISCRIMINATION

Treatment by Project Interactions on Stanford Measures for Basal vs Non-Basal Treatment Comparisons
(Blocking on Phonemes)

Comparisons	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
I.T.A. vs Basal	16.51**	22.30**	9.75**	15.24**	1.77	.74	36.87**	40.10**	16.06**	18.63**
Degrees of Freedom	(4, 2013)	(4, 2006)								
Basal plus Phonics vs Basal	1.40	1.89	2.65**	1.15	7.78**	7.98**	5.32**	9.18**	2.93*	2.29
Degrees of Freedom	(3, 1674)	(3, 1667)								
Language Experience vs Basal	1.98	14.11**	8.53**	31.52**	8.07**	10.35**	.75	4.82**	5.05**	10.30**
Degrees of Freedom	(3, 2906)	(3, 2899)								
Linguistic vs Basal	5.37**	18.04**	5.25**	7.65**	.40	5.94**	6.08**	13.64**	1.42	5.60**
Degrees of Freedom	(2, 1321)	(2, 1314)								
Phonic/Linguistic vs Basal	3.02**	10.99**	2.42	9.48**	1.51	2.56	4.81**	7.15**	6.13**	6.80**
Degrees of Freedom	(2, 977)	(2, 970)								

NOTE: Column A reports analysis of variance; Column C, analysis of covariance with all seven premeasures as covariates. One asterisk signifies interaction is significant at .05 level; two asterisks, .01 level.

Cell Frequencies for Each Level of Phonemes for the Basal vs I.T.A. Treatments

Project	Sex	Trt.	Low (20 or less)	Middle (21 - 31)	High (32 or more)
Fry	Male	Basal	30	13	12
		ITA	35	19	17
	Female	Basal	20	12	23
		ITA	23	23	17
Hahn	Male	Basal	52	49	47
		ITA	40	30	62
	Female	Basal	37	36	55
		ITA	38	23	62
Hayes	Male	Basal	32	7	6
		ITA	26	8	10
	Female	Basal	28	9	5
		ITA	26	15	11
Mazurkiewicz	Male	Basal	47	34	88
		ITA	49	31	100
	Female	Basal	25	16	107
		ITA	34	19	97
Tanyzer	Male	Basal	55	31	32
		ITA	24	38	62
	Female	Basal	44	24	42
		ITA	17	19	80

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs I.T.A. Comparison
(Blocking on Phonemes)

Effect	Word Reading A	Word Reading C	Paragarph Meaning A	Paragarph Meaning C	Vocabulary A	Vocabulary C	Spelling A	Spelling C	Word Study Skills A	Word Study Skills C
1 Treatment	1.07	11.25N	3.22	.00	1.15	.52	26.06B	15.37B	1.86	13.03N
Treatment x M-D Phonemes	3.97		8.57**		1.10		.96		.45	
2 Treatment	3.96n	6.02n	.92	1.06	.09	.09	24.83B	31.39B	.15	.30
Treatment x M-D Phonemes	.08		.16		1.28		.81		.53	
3 Treatment	37.77N	64.33N	3.40	7.60N	.20	.08	48.53N	72.28N	15.95N	30.97N
Treatment by M-D Phonemes	.90		.62		.10		2.59		2.26	
4 Treatment	.83	31.98N	.37	12.34N	8.55B	.02	134.45B	80.69B	14.82B	.10
Treatment x M-D Phonemes	1.05		1.41		1.05		2.27		2.22	
5 Treatment	83.09N	173.23N	32.21N	80.43N	.56	3.98n	.41	10.48N	41.01N	90.83N
Treatment x M-D Phonemes	3.36*		7.48**		.77		.96		.37	

NOTE: Projects in numerical order are Fry, Hahn, Hayes, Mazurkiewicz, and Tanyzer. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring I.T.A. indicated by N or n, basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 2013 d.f.; those in Column C, 1 and 2006 d.f.; interactions in Column A, 2 and 2013 d.f.

Cell Frequencies for Each Level of Phonemes
for the Basal vs Basal plus Phonics Treatments

Project	Sex	Trt.	Low (20 or less)	Middle (21 - 31)	High (32 or more)
Bordeaux	Male	Basal	36	15	12
		B+P	31	13	21
	Female	Basal	20	13	15
		B+P	23	16	15
Hayes	Male	Basal	32	7	6
		B+P	39	6	5
	Female	Basal	28	9	5
		B+P	36	8	9
Manning	Male	Basal	68	35	55
		B+P	41	34	59
	Female	Basal	49	35	68
		B+P	33	21	72
Murphy	Male	Basal	57	27	26
		B+P	157	61	65
	Female	Basal	51	24	29
		B+P	98	61	76

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Basal plus Phonics Comparison
(Blocking on Phonemes)

Effect	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
1 Treatment	.53	1.45	.76	.08	1.00	.19	.11	1.73	.26	.06
Treatment x M-D Phonemes	.33		.82		.06		.28		.08	
2 Treatment	.83	8.24N	.01	3.52	10.79B	5.08b	5.84n	14.92N	.86	6.50n
Treatment x M-D Phonemes	.35		.16		.23		.04		.10	
3 Treatment	31.44N	17.39N	14.00N	5.72n	23.18N	17.03N	70.91N	52.06N	29.98N	22.44N
Treatment x M-D Phonemes	1.20		.24		2.92		1.60		2.29	
4 Treatment	6.24n	1.59	13.95N	7.30N	17.82N	21.41N	1.53	.01	10.13N	5.23n
Treatment x M-D Phonemes	.32		.68		.36		.54		.38	

NOTE: Projects in numerical order are Bordeaux, Hayes, Manning, and Murphy. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring basal plus phonics indicated by N or n, basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. Treatment effects in Column A based on 1 and 1674 d.f.; those in Column C, 1 and 1667 d.f.; interactions in Column A, 2 and 1674 d.f.

Cell Frequencies for Each Level of Phonemes for the Basal vs Language Experience Treatments

Project	Sex	Trt.	Low (20 or less)	Middle (21 - 31)	High (32 or more)
Cleland	Male	Basal	81	49	62
		LE	78	23	30
	Female	Basal	72	37	75
		LE	73	29	54
Hahn	Male	Basal	52	49	47
		LE	55	29	51
	Female	Basal	37	36	55
		LE	28	49	57
Kendrick	Male	Basal	55	101	198
		LE	126	82	124
	Female	Basal	22	74	202
		LE	89	83	133
Stauffer	Male	Basal	103	13	11
		LE	67	21	33
	Female	Basal	65	16	11
		LE	57	20	40

Selected Treatment Effects From Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Language Experience Comparison

(Blocking on Phonemes)

Effect	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
1 Treatment	28.06N	38.35N	15.20N	19.28N	26.13N	39.09N	.29	.17	14.54N	19.39N
Treatment x M-D Phonemes	1.18		1.43		.15		2.17		.90	
2 Treatment	6.01n	5.59n	.40	.10	1.17	.75	1.32	.91	1.03	.66
Treatment x M-D Phonemes	.45		.34		.03		.01		.62	
3 Treatment	18.66B	1.19	9.05B	67.34B	22.73N	.57	6.93B	1.50	5.92b	7.31B
Treatment x M-D Phonemes	3.28*		1.94		9.20**		2.39		5.21**	
4 Treatment	1.99	22.36N	.07	9.15N	2.60	2.00	.04	7.79N	4.23n	.53
Treatment x M-D Phonemes	7.63**		13.46**		14.16**		11.98**		14.00**	

NOTE: Projects in numerical order are Cleland, Hahn, Kendrick, and Stauffer. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring language experience indicated by N or n, basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 2906 d.f.; those in Column C, 1 and 2899 d.f.; interactions in Column A, 2 and 2906 d.f.

Unadjusted Premeasure Means for Project Four in Basal vs Language Experience Comparison by Treatment and Level of Auditory Discrimination

Level	Murphy-Durrell Letter Names		Murphy-Durrell Learning Rate		Pintner-Cunningham	
	Basal	LE	Basal	LE	Basal	LE
High Phonemes 32 or more	39.5	42.2	9.7	11.9	43.1	45.8
Average Phonemes 21 - 31	33.6	30.6	8.4	9.0	39.1	40.1
Low Phonemes 20 or less	21.5	16.3	6.5	5.2	33.1	26.7

Unadjusted Stanford Means for Project Four in Basal vs Language Experience Comparison by Treatment and Level of Auditory Discrimination

Level	Word Reading		Paragraph Meaning		Spelling		Word Study Skills	
	Basal	LE	Basal	LE	Basal	LE	Basal	LE
High Phonemes 32 or more	21.0	27.0	21.6	29.9	11.3	17.3	40.1	46.8
Average Phonemes 21 - 31	19.3	21.2	18.9	23.0	10.9	12.9	36.4	39.1
Low Phonemes 20 or less	14.6	14.0	14.4	11.8	8.1	6.4	31.9	27.1

Cell Frequencies for Each Level of Phonemes for the Basal vs Linguistic Treatments

Project	Sex	Trt.	Low (20 or less)	Middle (21 - 31)	High (32 or more)
Ruddell	Male	Basal	33	8	19
		Ling	26	12	13
	Female	Basal	28	9	23
		Ling	29	5	12
Schneyer	Male	Basal	101	30	39
		Ling	128	24	27
	Female	Basal	75	38	51
		Ling	109	27	32
Sheldon	Male	Basal	7	22	44
		Ling	61	21	72
	Female	Basal	11	9	50
		Ling	49	30	83

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Linguistic Comparison (Blocking on Phonemes)

Effect	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
1 Treatment	.02	.51	.37	2.55	5.38b	12.10B	6.90B	15.24B	2.40	6.31b
Treatment x M-D Phonemes	.83		.01		.05		.53		1.46	
2 Treatment	.63	4.56n	21.64B	25.44B	6.68B	2.76	11.86B	13.01B	2.80	1.35
Treatment x M-D Phonemes	.15		.63		.97		.68		.60	
3 Treatment	13.73N	42.85N	1.33	.20	.40	3.63	1.84	8.38N	.04	4.51n
Treatment x M-D Phonemes	1.75		.80		.11		3.19*		2.54	

NOTE: Projects in numerical order are Schneyer, Sheldon, and Ruddell. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring linguistic indicated by N or n, basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 1321 d.f.; those in Column C, 1 and 1314 d.f.; interactions in Column A,2 and 1321 d.f.

Cell Frequencies for Each Level of Phonemes for the Basal vs Phonic/Linguistic Treatments

Project	Sex	Trt.	Low (20 or less)	Middle (21 - 31)	High (32 or more)
Hayes	Male	Basal	32	7	6
		P/L	43	5	5
	Female	Basal	28	9	5
		P/L	28	11	7
Tanyzer	Male	Basal	55	31	32
		P/L	20	16	70
	Female	Basal	44	24	42
		P/L	10	10	60
Wyatt	Male	Basal	26	22	39
		P/L	24	20	45
	Female	Basal	26	30	67
		P/L	20	27	67

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Phonic/Linguistic Comparison

(Blocking on Phonemes)

Effect	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
1 Treatment	55.97N	97.14N	10.21N	25.59N	.40	1.43	19.88N	41.70N	13.66N	35.94N
Treatment x M-D Phonemes	.79		.15		.94		.07		.21	
2 Treatment	107.12N	143.48N	20.19N	28.44N	10.39N	12.74N	12.96N	17.34N	25.49N	33.89N
Treatment x M-D Phonemes	5.03**		9.24**		1.57		2.92		3.13*	
3 Treatment	50.60N	63.96N	2.96	2.86	.73	.11	8.16N	11.00N	5.80n	7.89N
Treatment x M-D Phonemes	.42		1.09		1.74		.34		.06	

NOTE: Projects in numerical order are Hayes, Tanyzer, and Wyatt. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring phon/ling indicated by N or n, Basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 977 d.f.; those in Column C, 1 and 970 d.f.; interactions in Column A, 2 and 977 d.f.

Treatment by Project Interactions on Stanford Measures
for Basal vs Non-Basal Treatment Comparisons
(Blocking on Letter Names)

Comparisons	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
I.T.A. vs Basal	26.89**	22.72**	19.95**	14.75**	3.56**	.46	43.78**	46.34**	22.31**	20.18**
Degrees of Freedom	(4, 1993)	(4, 1986)								
Basal plus Phonics vs Basal	.57	2.09	1.58	1.09	4.92**	6.92**	5.26**	8.40**	.64	1.91
Degrees of Freedom	(3, 1658)	(3, 1651)								
Language Experience vs Basal	15.02**	10.12**	34.12**	26.52**	5.69**	9.57**	5.26**	2.87*	10.44**	7.80**
Degrees of Freedom	(3, 2890)	(3, 2883)								
Linguistic vs Basal	3.96**	19.78**	7.71**	6.41**	.62	6.10**	5.37**	12.13**	.91	6.91**
Degrees of Freedom	(2, 1309)	(2, 1302)								
Phonic/Linguistic vs Basal	9.35**	9.50**	6.06**	7.71**	2.90*	1.66	4.66**	6.64**	5.77**	5.80**
Degrees of Freedom	(2, 965)	(2, 958)								

NOTE: Column A reports analysis of variance; Column C, analysis of covariance with all seven premeasures as covariates. One asterisk signifies interaction is significant at .05 level; two asterisks, .01 level.

Cell Frequencies for Each Level of Letter Knowledge for the Basal vs I.T.A. Treatments

Project	Sex	Trt.	L (21 or less)	LM (22-34)	HM (35-43)	H (44 or more)
Fry	Male	Basal	16	17	7	15
		ITA	30	17	14	10
	Female	Basal	9	8	14	24
		ITA	17	15	11	20
Hahn	Male	Basal	36	32	33	47
		ITA	26	33	29	44
	Female	Basal	17	30	25	56
		ITA	18	29	21	55
Hayes	Male	Basal	21	14	6	4
		ITA	22	11	3	8
	Female	Basal	17	11	7	7
		ITA	16	14	9	13
Mazurkiewicz	Male	Basal	29	47	31	62
		ITA	69	49	33	29
	Female	Basal	14	28	35	71
		ITA	38	50	24	38
Tanyzer	Male	Basal	20	39	27	32
		ITA	33	35	33	23
	Female	Basal	10	23	20	57
		ITA	18	25	23	50

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs I.T.A. Comparison
(Blocking on Letter Names)

Effect	Word Reading A	Word Reading C	Paragraph Meaning A	Paragraph Meaning C	Vocabulary A	Vocabulary C	Spelling A	Spelling C	Word Study Skills A	Word Study Skills C
1 Treatment	7.11N	10.27N	2.00	.05	.01	.38	16.17B	15.69B	7.48N	11.23N
Treatment x M-D Letter Names	1.18		.33		3.74*		1.46		1.21	
2 Treatment	8.74N	4.56n	.03	1.38	.37	.11	23.39B	35.09B	1.41	.03
Treatment x M-D Letter Names	1.67		.88		2.10		2.03		2.35	
3 Treatment	48.74N	62.42N	5.72n	7.35N	.00	.00	65.85N	77.79N	23.61N	31.96N
Treatment x M-D Letter Names	.72		2.04		.28		1.16		.94	
4 Treatment	40.39N	23.13N	19.90B	10.08B	2.08	.01	59.47B	87.99B	1.44	.50
Treatment x M-D Letter Names	.42		.34		.14		5.55**		.04	
5 Treatment	241.29N	171.90N	123.37N	76.45N	23.84N	1.58	27.57N	9.85N	143.00N	84.50N
Treatment x M-D Letter Names	.62		.57		.29		.88		.33	

NOTE: Projects in numerical order are Fry, Hahn, Hayes, Mazurkiewicz, and Tanyzer. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring I.T.A. indicated by N or n, basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 1993 d.f.; those in Column C, 1 and 1986 d.f.; interactions in Column A, 3 and 1993 d.f.

Cell Frequencies for Each Level of Letter Knowledge for the Basal vs Basal plus Phonics Treatments

Project	Sex	Trt.	L (21 or less)	LM (22-34)	HM (35-43)	H (44 or more)
Bordeaux	Male	Basal	21	11	11	20
		B+P	21	18	10	16
	Female	Basal	13	14	4	17
		B+P	13	15	9	17
Hayes	Male	Basal	21	14	6	4
		B+P	30	10	5	5
	Female	Basal	17	11	7	7
		B+P	30	12	2	9
Manning	Male	Basal	69	41	22	26
		B+P	27	19	31	57
	Female	Basal	48	44	20	40
		B+P	17	20	22	67
Murphy	Male	Basal	43	15	20	32
		B+P	101	54	54	74
	Female	Basal	38	20	19	27
		B+P	54	35	65	81

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Basal plus Phonics Comparison
(Blocking on Letter Names)

Effect	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
1 Treatment	1.58	1.76	.01	.01	.76	.39	1.62	2.73	.10	.15
Treatment x M-D Letter Names	1.92		3.52*		1.60		2.73*		1.69	
2 Treatment	4.30n	8.46N	.86	3.19	6.32b	5.40b	11.67N	16.29N	3.14	6.57n
Treatment x M-D Letter Names	.01		1.56		.35		.18		.57	
3 Treatment	5.89n	16.50N	.50	4.77n	3.43	12.35N	29.33N	43.85N	5.53n	18.96N
Treatment x M-D Letter Names	.79		.21		2.68*		.37		.17	
4 Treatment	2.59	1.52	8.99N	7.58N	11.79N	21.91N	.42	.05	5.85n	5.33n
Treatment x M-D Letter Names	4.51**		4.31**		.84		1.72		.37	

NOTE: Projects in numerical order are Bordeaux, Hayes, Manning, and Murphy. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring basal plus phonics indicated by N or n, basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 1658 d.f.; those in Column C, 1 and 1651 d.f.; interactions in Column A, 3 and 1658 d.f.

Cell Frequencies for Each Level of Letter Knowledge for the Basal vs Language Experience Treatments

Project	Sex	Trt.	L (21 or less)	LM (22-34)	HM (35-43)	H (44 or more)
Cleland	Male	Basal	46	46	29	71
		LE	47	23	24	37
	Female	Basal	32	41	34	77
		LE	24	38	35	59
Hahn	Male	Basal	36	32	33	47
		LE	29	32	36	38
	Female	Basal	17	30	25	56
		LE	12	28	27	67
Kendrick	Male	Basal	93	93	48	120
		LE	52	94	58	128
	Female	Basal	59	77	50	112
		LE	41	73	53	138
Stauffer	Male	Basal	70	29	12	16
		LE	62	16	22	21
	Female	Basal	40	13	19	20
		LE	45	18	22	32

Selected Treatment Effects From Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Language Experience Comparison
(Blocking on Letter Names)

Effect	Word Reading		Paragraph Meaning		Vocabulary		Spelling		Word Study Skills	
	A	C	A	C	A	C	A	C	A	C
1 Treatment	24.07N	44.95N	13.04N	24.38N	17.87N	41.73N	.70	.02	10.46N	23.35N
Treatment x M-D Letter Names	.04		.07		1.20		1.30		.08	
2 Treatment	5.37n	5.12n	.11	.01	.86	.70	.91	.73	.68	.50
Treatment x M-D Letter Names	.12		2.64*		.29		.31		.62	
3 Treatment	8.14B	.06	91.41B	47.09B	.71	.17	8.84B	.73	20.42B	2.27
Treatment x M-D Letter Names	4.84**		7.85**		4.19**		6.59**		8.27**	
4 Treatment	20.08N	19.29N	11.62N	11.05N	1.69	2.04	6.67N	8.45N	1.01	.44
Treatment x M-D Letter Names	9.26**		16.24**		10.82**		6.58**		13.51**	

NOTE: Projects in numerical order are Cleland, Hahn, Kendrick, and Stauffer. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring language experience indicated by N or n, basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 2890 d.f.; those in Column C,1and 2883 d.f.; interactions in Column A, 3 and 2890 d.f.

Unadjusted Stanford Means for Project Four in Basal vs Language Experience Comparison by Treatment and Level of Letter Knowledge

Level	Word Reading		Paragraph Meaning		Spelling		Word Study Skills	
	Basal	LE	Basal	LE	Basal	LE	Basal	LE
High Letter Knowledge 44 or more	21.1	27.9	19.8	30.7	13.2	17.4	38.2	46.9
High-Middle Letter Knowledge 35 - 43	18.3	24.6	18.1	26.3	11.0	15.8	37.0	43.3
Low-Middle Letter Knowledge 22 - 34	17.7	19.3	19.0	18.8	10.2	11.6	36.8	36.7
Low Letter Knowledge 21 or less	12.8	12.7	12.5	10.9	6.3	5.4	29.4	25.6

Unadjusted Premeasure Means for Project Four in Basal vs Language Experience Comparison
by Treatment and Level of Letter Knowledge

Level	Murphy-Durrell Phonemes		Murphy-Durrell Learning Rate		Pintner-Cunningham	
	Basal	LE	Basal	LE	Basal	LE
High Letter Knowledge 44 or more	22.5	36.0	10.9	12.1	42.3	45.0
High-Middle Letter Knowledge 35 - 43	16.7	28.3	8.5	10.4	38.8	41.2
Low-Middle Letter Knowledge 22 - 34	14.9	21.8	7.1	8.3	38.5	39.7
Low Letter Knowledge 21 or less	9.5	9.6	5.4	4.7	29.9	25.5

Cell Frequencies for Each Level of Letter Knowledge for the Basal vs Linguistic Treatments

Project	Sex	Trt.	L (21 or less)	LM (22-34)	HM (35-43)	H (44 or more)
Ruddell	Male	Basal	20	12	11	17
		Ling	18	9	8	16
	Female	Basal	18	17	6	19
		Ling	14	9	9	14
Schneyer	Male	Basal	62	31	19	58
		Ling	76	33	27	43
	Female	Basal	52	23	24	65
		Ling	72	24	35	37
Sheldon	Male	Basal	14	23	18	18
		Ling	46	39	28	41
	Female	Basal	9	8	18	35
		Ling	38	37	29	58

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Linguistic Comparison
(Blocking on Letter Names)

Effect	Word Reading A	Word Reading C	Paragraph Meaning A	Paragraph Meaning C	Vocabulary A	Vocabulary C	Spelling A	Spelling C	Word Study Skills A	Word Study Skills C
1 Treatment	8.41N	48.55N	5.85b	.75	2.69	4.30n	.13	9.60N	.57	7.40N
Treatment x M-D Letter Names	7.53**		1.17		1.12		2.18		1.77	
2 Treatment	.10	.16	.99	1.49	7.49B	9.70B	11.38B	13.44B	4.20b	5.49b
Treatment x M-D Letter Names	.21		1.11		2.01		.25		.37	
3 Treatment	.14	6.12n	39.36B	23.02B	14.83B	2.27	25.19B	12.23B	10.01B	1.08
Treatment x M-D Letter Names	3.26*		1.74		2.01		.61		3.49*	

NOTE: Projects in numerical order are Ruddell, Schneyer, and Sheldon. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring linguistic indicated by N or n, basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 1309 d.f.; those in Column C, 1 and 1302 d.f.; interactions in Column A, 3 and 1309 d.f.

Cell Frequencies for Each Level of Letter Knowledge for the Basal vs Phonic/Linguistic Treatments

Project	Sex	Trt.	L (21 or less)	LM (22-34)	HM (35-43)	H (44 or more)
Hayes	Male	Basal	21	14	6	4
		P/L	33	14	3	3
	Female	Basal	17	11	7	7
		P/L	24	8	6	8
Tanyzer	Male	Basal	20	39	27	32
		P/L	9	20	19	58
	Female	Basal	10	23	20	57
		P/L	7	5	11	57
Wyatt	Male	Basal	14	18	22	33
		P/L	15	19	18	37
	Female	Basal	15	20	32	56
		P/L	16	20	23	55

Selected Treatment Effects from Within Projects Analysis of Variance and Covariance on Stanford Measures for Basal vs Phonic/Linguistic Comparison
(Blocking on Letter Names)

Effect	Word Reading A	Word Reading C	Paragraph Meaning A	Paragraph Meaning C	Vocabulary A	Vocabulary C	Spelling A	Spelling C	Word Study Skills A	Word Study Skills C
1 Treatment	81.00N	96.62N	21.33N	24.79N	.13	1.12	35.15N	40.34N	23.24N	35.18N
Treatment x M-D Letter Names	1.35		2.13		.83		.94		.50	
2 Treatment	174.26N	135.12N	37.43N	20.22N	27.67N	9.11N	27.81N	12.54N	54.49N	24.86N
Treatment x M-D Letter Names	1.61		2.11		.87		.70		2.72	
3 Treatment	63.06N	61.89N	5.87n	2.68	2.06	.11	12.96N	10.44N	9.28N	7.54N
Treatment x M-D Letter Names	1.06		.98		2.63*		.19		1.64	

NOTE: Projects in numerical order are Hayes, Tanyzer, and Wyatt. Column A reports analysis of variance; Column C, covariance with all seven premeasures as covariates. Significant treatment difference favoring phon/ling indicated by N or n, basal by B or b. Capital letter in each case indicates .01 level of significance; lower case letter, .05 level. One asterisk signifies interaction significant at .05 level; two asterisks, .01 level. Treatment effects in Column A based on 1 and 965 d.f.; those in Column C, 1 and 958 d.f.; interactions in Column A, 3 and 965 d.f.

APPENDIX C

CATEGORICAL DATA BY PROJECT AND TREATMENT FOR THE FIFTEEN PROJECTS INCLUDED IN THE MAIN ANALYSIS

Overall Teacher Competence

Rating	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
Incompetent						1	2											1
Poor	1	1	10	6				2	8	7			4	3	2	1	2	
Adequate	2		3	4	2	2		1	15	13	3	1	2	1	1	6	1	5
Good	2	1		2	3	9	4	3	4	7	3	2		1	1	4	2	6
Excellent		3			5	8	6	5			4	7			8	1	2	2

Overall Teacher Competence

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
Rating	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Incompetent																
Poor		2	2	6	3	1					1		1			
Adequate	2		10	8	1	1	3	3		2		3	1		2	2
Good	2	2	4	1	4	7	4	4	2	2		1	2	3	8	5
Excellent	2	3	1		4	3	5	2	7	4	4	1	1	2		3

Awareness of and Attention Paid to Individual Needs of Pupils

Rating	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
Total lack of awareness						1											1	1
Limited awareness	1	1	10	6			2	2	8	7			4	2	2	1	2	
Moderate awareness	2		3	4	1	2	4	1	12	14	3	1	2	3		9		7
Generally aware and adjusts	2	1		2	3	10	2	3	6	6	4	4			4	2	2	4
Exceptionally aware & effective adjustment		3			6	7	4	5	1		3	5			6		2	2

Awareness of and Attention Paid to Individual Needs of Pupils

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
Rating	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Total lack						1					1		1			
Limited awareness	1			5	1							1	1			1
Moderate awareness	2	2	9	10	3	2	5	3		1		3	1	1	4	3
Generally aware and adjusts	2	4	7		2	3		3	6	3			2	4	5	4
Exceptionally aware and effective adjustment	1	1	1		6	6	7	3	3	4	4	1			1	2

Highest Degree Held by Teacher

Degree	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
Less than bachelors		1			3	5		2	3		1		1		3	3	3	2
More than bachelors less than masters	4	3	13	12	1	1	4	3	4	2	2	3	5	5	5	6	2	6
Masters degree		1				3	4	2		1		2			2	1	1	2
Masters + additional graduate work						1	2	3									1	1
Specialists or professional																		
Doctors degree																		
Bachelors degree	1				6	10	1	1	20	24	7	5			2	2		3

Highest Degree Held by Teacher

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
Degree	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Less than bachelors		1	5	4												
More than bachelors less than masters	1	2			8	7	5	6	8	6	3	1	4	3	5	7
Masters degree	2	1	1	2	1	1	2	1		1	1	2			2	1
Masters + additional graduate work		1		2	1	2		1	1	1					1	
Specialists or professional																
Doctors degree																
Bachelors degree	3	2	11	6	2	2	5				1	2	1	2	2	2

Type of Teaching Certificate Held by Teacher

Certificate	Bordeaux B	Bordeaux B+P	Manning B	Manning B+P	Murphy B	Murphy B+P	Cleland B	Cleland LE	Kendrick B	Kendrick LE	Stauffer B	Stauffer LE	Ruddell B	Ruddell LING	Schneyer B	Schneyer LING	Sheldon B	Sheldon LING
Uncertified																		
Lowest sub-standard																	1	1
Higher sub-standard		1								4		1			2	3	2	
Standard type	5	3	13	12	10	20	1	1	25	21	10	9	6	5	2	2	2	13
Higher than standard type		1					11	10	2	2					8	7	2	
Other																		

Type of Teaching Certificate Held by Teacher

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
Certificate	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Uncertified																
Lowest sub-standard			1	2		1	1									
Higher sub-standard	1	1	6	1												
Standard type	5	5	10	12	12	8	11	8	9	6	5	5	5	5	10	10
Higher than standard type						3		1		2						
Other																

Total Number of Years of Teaching Experience
(exclusive of current year)

	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
No. of Years	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
0 - 4	3	1	6	5	1	6	1		5	7		2	1	1	2	3		3
5 - 9		1	3	1	3	1	3	3	6	6	2	2	2	3	1	2	3	3
10 - 14			2	1	2	2	1	4	3	4	2		1		1	3	1	5
15 - 19	1	2	2	3	1	2		1	6	6	1	2	1	1	3	2	1	1
20 - 24				1		2	1		2	3	1				1			2
25 - 29	1				1	2	4	2	2		3				1	2	1	
30 - 34						3	1		3	1	1	2			1		1	
35 - 39				1	2		1						1		1			
40 - 44		1				2		1				2			1			
45 - 49																		
Means	9.6	16.2	6.5	10.8	16.0	17.2	19.8	16.0	14.1	11.2	18.5	19.6	13.5	8.2	18.3	12.1	16.0	10.4

Total Number of Years of Teaching Experience
(exclusive of current year)

No. of Years	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
0 - 4	3	3	6	4	1	2	5	3	7	3	2	7	2	3	3	1
5 - 9	2	1	1	3	4	2	1	2	1	3	1	2			4	4
10 - 14	1	1	3		4	1	3	3	1		1		1	1	1	1
15 - 19		1	1	2	1	4	2			2			1	1	1	1
20 - 24			1	2	1			1		2		1				1
25 - 29			1	1			2				1					2
30 - 34			3	1	1	1							1		1	
35 - 39		1	1	2			1									
40 - 44																
45 - 49																
Means	5.8	10.7	14.1	15.5	12.6	15.8	10.1	8.3	3.8	10.3	9.4	6.6	13.2	6.6	9.9	13.3

Number of Years of First Grade Teaching Experience
(exclusive of current year)

No. of Years	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
0 - 4	3	2	8	6	2	6	2	2	8	12	2	2	3	5	2	6	1	4
5 - 9			2	2	4	4	3	4	5	6	2	2			2	2	3	6
10 - 14	2		3	2		2	2	2	5	5	3	2	1		1	1		3
15 - 19		2		1	2	1		2	5	3	1	1	1		4	2	1	1
20 - 24						2	4	1	3						1	1	1	
25 - 29				1	1	3					1				1			
30 - 34					1	1			1	1	1	2			1		1	
35 - 39							1						1					
40 - 44		1				1						1						
45 - 49																		
Means	5.8	15.2	4.6	7.6	12.3	14.1	14.7	10.6	10.9	7.4	12.3	16.3	12.0	3.0	13.7	7.6	13.4	6.9

Number of Years of First Grade Teaching Experience
(exclusive of current year)

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
No. of Years	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
0 - 4	5	4	8	5	3	3	5	6	9	4	3	3	3	3	5	2
5 - 9	1	1	1	4	3	4	4	2		2	1	1		1	3	3
10 - 14		1	3	1	5	4	2	1		2			1	1		2
15 - 19			2	1						2	1				1	2
20 - 24			1	1			1					1			1	1
25 - 29				1	1	1							1			
30 - 34		1	1	1												
35 - 39			1	1												
40 - 44																
45 - 49																
Means	2.3	7.6	10.4	11.9	9.3	8.1	6.6	4.2	1.2	8.3	6.0	6.0	9.8	4.6	6.4	9.6

Teacher Absence

Days Absent	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LIN
0 - 4	4	2	12	8	7	17	8	6	15	16	6	9	3	3	4	6	5	9
5 - 9	1	2	1	3	1	2	3	3	10	7	2	1	1	2	6	2	2	4
10 - 14		1			1	1		2	1	2	1		2		1	3		
15 - 19				1			1								1			1
20 - 24					1				1		1					1		
25 - 29										1								
30 - 34																		
35 - 39																		
40 - 44																		
45 - 49																		
Means	3.0	5.2	1.3	4.5	4.7	1.9	4.3	4.1	4.4	4.4	5.7	1.8	5.2	3.4	5.8	6.4	4.0	3.

Teacher Absence

Days Absent	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
0 - 4	3	1	7	6	7	5	7	3	1	3	2	4	2	3	5	7
5 - 9	3	4	6	7	2	7	3	5	4	2	1	1	3	1	5	2
10 - 14		2	3	2	3			1	4	3	1			1		1
15 - 19							2									
20 - 24			1													
25 - 29											1					
30 - 34																
35 - 39																
40 - 44																
45 - 49																
Means	4.0	7.0	5.8	5.7	5.2	4.3	5.6	6.4	8.8	7.1	9.6	2.6	4.0	5.2	4.3	3.8

Scores on San Diego Teacher Attitude Scale: Individualized Approach

Score	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
					X	X					X	X						
0 - 9													3					
10 - 19			1				2						2	3				
20 - 29			3	1			3	1	2						2	1		
30 - 39	3	3	5	2			5	3	22	4				1	5	6	4	7
40 - 49	2	2	3	9			2	4	3	18					5	5	3	7
50 - 59			1					3		5								
60 - 69																		
70 - 79																		
80 - 89																		
90 - 99																		
Means	36.4	39.6	35.5	41.3			30.8	42.4	34.8	44.5			9.8	16.3	37.0	37.8	38.3	39.4

X Information Unavailable

Scores on San Diego Teacher Attitude Scale: Individualized Approach

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
Score	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
	X	X						X	X	X	X	X	X	X		
0 - 9																
10 - 19				1												1
20 - 29			4	1	1										1	
30 - 39			10	2	4	4									4	6
40 - 49			3	10	7	6	10								5	3
50 - 59				1		2	2									
60 - 69																
70 - 79																
80 - 89																
90 - 99																
Means			33.8	39.5	38.8	43.8	45.1								37.8	36.2

X Information Unavailable

Scores on San Diego Teacher Attitude Scale: Language Experience Approach

Score	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
					X	X					X	X						
0 - 9													1	2				
10 - 19				1			3		2						1			
20 - 29			2	5			5		17				1		2	3	2	3
30 - 39	4	4	6	4			4	1	8	3					4	3	3	4
40 - 49	1	1	5	2				2		10					5	6	2	7
50 - 59								8		14								
60 - 69																		
70 - 79																		
80 - 89																		
90 - 99																		
Means	36.2	38.2	36.9	31.2			26.3	50.7	27.6	47.0			11.0	9.0	34.9	36.9	34.3	37.9

X Information Unavailable

Scores on San Diego Teacher Attitude Scale: Language Experience Approach

Score	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
	X	X						X	X	X	X	X	X	X		
0 - 9																
10 - 19					1											
20 - 29			3		2	1									1	1
30 - 39			9	6	7	4									5	8
40 - 49			5	9	2	6	7								4	1
50 - 59						1	5									
60 - 69																
70 - 79																
80 - 89																
90 - 99																
Means			35.7	39.8	33.9	40.8	48.1								36.9	34.2

X Information Unavailable

Scores on San Diego Teacher Attitude Scale: Basic Series

Score	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
					X	X					X	X						
0 - 9																		
10 - 19								2		3								
20 - 29								3		13				1				
30 - 39				1			1	2	1	8								1
40 - 49	5	5	7	6			6	4	21	3					7	10	5	12
50 - 59			6	5			5		5						5	2	2	1
60 - 69																		
70 - 79																		
80 - 89																		
90 - 99																		
Means	45.4	46.6	49.7	47.4			49.1	31.2	46.5	28.7				21.0	48.7	45.8	46.9	44.4

X Information Unavailable

Scores on San Diego Teacher Attitude Scale: Basic Series

Score	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
	X	X						X	X	X	X	X	X	X		
0 - 9																
10 - 19						1										
20 - 29							2								1	1
30 - 39			4	4	2	3	6								4	2
40 - 49			10	8	8	8	4								5	7
50 - 59			3	3	2											
60 - 69																
70 - 79																
80 - 89																
90 - 99																
Means			44.4	43.9	43.9	40.0	35.1								39.6	39.9

X Information Unavailable

Class Structure

	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
Rating	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
Vague & confusing						1	2								1			1
More vague than clear, loose structure		1	10	5				2	13	9			5	3	1	2	1	
Moderate structure	2	1	3	6	1			1	12	10	2	1	1	1	1	4	1	5
Well organized & clear	1	3		1	5	11		2	2	8	5	2		1	2	5	3	4
Highly structured	2				4	8	10	6			3	7			7	1	2	4

Class Structure

Rating	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Vague & confusing											1					
More vague than clear, loose structure		1	2	6	2	1	1						1			
Moderate structure	1	1	10	9	3	2	1	4		2		3	1		4	3
Well organized & clear	2	1	4		1	6	2	3	2	3		1	2	3	4	5
Highly structured	3	4	1		6	3	8	2	7	3	4	1	1	2	2	2

Class Participation

Rating	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
Generally unresponsive							2								2	1		1
Low participation	1	1	11	6		1		2	7	7			5	3	3	3	1	
One group participates	1		2	5	1	3	3	1	15	14	3	1	1	1	1	3	2	3
Moderately high participation	1	1		1	7	9	2	3	5	6	5	6		1	4	3	3	9
High participation	2	3			2	7	5	5			2	3			2	2	1	1

Class Participation

Rating	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Generally unresponsive																
Low participation	1		2	4	2						1	1	1			1
One group participates	1	3	10	10	2	2	3	2	1	2		3	1	1	4	2
Moderately high participation	4	2	5	1	4	6	3	6	6	2	1		2	2	6	5
High participation		2			4	4	6	1	2	4	3	1	1	2	-	2

Class Size at Beginning of School Year

No. of Pupils	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
0 - 4																		
5 - 9																		
10 - 14														1				
15 - 19	4				4												2	2
20 - 24	1		1	1	1	3		3	3	1	1	1	1		2		3	5
25 - 29		2	5	7	2	7		1	6	15	9	7	3	2	3	3	2	6
30 - 34		3	7	4	1	9	6	6	14	11		2	2	2	1	7		1
35 - 39					2	1	5	1	4						5	2		
40 - 44															1			
45 - 49							1											
Means	36.2	29.6	29.3	27.8	25.5	28.5	35.2	29.6	30.6	28.9	26.7	28.3	28.5	26.0	31.6	31.6	22.3	24.1

Class Size at Beginning of School Year

No. of Pupils	Fry B	Fry ITA	Mazurkiewicz B	Mazurkiewicz ITA	Hahn B	Hahn ITA	Hahn LE	Tanyzer B	Tanyzer ITA	Tanyzer P/L	Hayes B	Hayes ITA	Hayes B+P	Hayes P/L	Wyatt B	Wyatt P/L
	X	X														
0 - 4																
5 - 9																
10 - 14			1													
15 - 19			1		1						1		1		2	1
20 - 24			1	2		4	4	3	1		4	3	1	2	4	6
25 - 29			8	4	6	6	3	3	5	8		2	2	3	4	3
30 - 34			6	7	5	2	4	3	3							
35 - 39				2			1						1			
40 - 44																
45 - 49																
Means			27.1	30.6	28.1	26.3	27.4	26.9	27.4	26.5	21.0	23.6	26.0	24.0	22.5	23.6

X Information Unavailable

Class Size as of May 1, 1965

No. of Pupils	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
0 - 4																		
5 - 9																		
10 - 14														1				
15 - 19					1					4							1	1
20 - 24					4	4		4	12	10	3	1			2	1	3	6
25 - 29	1	1	3	9	5	7	1	3	12	7	7	5	2		4	5	3	7
30 - 34	4	4	9	3		9	6	3	3	6		3	1	2	3	3		
35 - 39			1				4	1				1	1	2	2	3		
40 - 44													2		1			
45 - 49							1											
Means	29.8	29.8	30.8	28.5	24.7	27.7	34.3	27.5	25.5	24.5	25.6	28.3	34.2	30.4	30.6	31.2	23.3	23.6

Class Size as of May 1, 1965

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
No. of Pupils	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
0 - 4																
5 - 9																
10 - 14			1													
15 - 19		1	1		1	1					2		1	1	2	3
20 - 24	3	2	3	3	2	1	4	3	1		2	4		3	5	6
25 - 29	3	4	6	5	6	9	6	2	5	8	1	1	3	1	3	1
30 - 34			4	5	2	1	2	4	3				1			
35 - 39			2	2	1											
40 - 44																
45 - 49																
Means	24.2	24.1	26.9	29.6	27.3	25.7	26.1	27.1	26.8	26.3	20.2	21.8	26.2	24.4	22.3	21.0

Length of School Day

No. of Hours	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
Less than 3 hours																		
3.0 - 3.5 hours				9					1	2								
3.6 - 4.0 hours			13	3					7	12								
4.1 - 4.5 hours									4	3								
4.6 - 5.0 hours					5	15			10	9					12	12	7	13
5.1 - 5.5 hours					5	5			5	1			6	5				1
5.6 - 6.0 hours							12	11										
6.1 - 6.5 hours	5	5									10	10						
6.6 - 7.0 hours																		
Over 7 hours																		

Length of School Day

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
No. of Hours	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Less than 3 hours																
3.0 - 3.5 hours																
3.6 - 4.0 hours																
4.1 - 4.5 hours																
4.6 - 5.0 hours						1		9			5	5	5	5		
5.1 - 5.5 hours	6	7			5	5	3		9	8					7	7
5.6 - 6.0 hours			17	15	5	4	5								3	3
6.1 - 6.5 hours					2	2	4									
6.6 - 7.0 hours																
Over 7 hours																

Length of School Year

No. of Days	Bordeaux B	Bordeaux B+P	Manning B	Manning B+P	Murphy B	Murphy B+P	Cleland B	Cleland LE	Kendrick B	Kendrick LE	Stauffer B	Stauffer LE	Ruddell B	Ruddell LING	Schneyer B	Schneyer LING	Sheldon B	Sheldon LING
Less than 160 days																		
161 - 165																		
166 - 170																		
171 - 175				12														
176 - 180	5	5	13		5	15			27	27	10	10	6	5				
181 - 185					5	5									12	12	4	10
186 - 190																	3	4
191 - 195							12	11										
196 - 200																		
Over 200 days																		

Length of School Year

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
No. of Days	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Less than 160 days																
161 - 165 days																
166 - 170 days																
171 - 175 days																
176 - 180 days			17	15		1	1				5	5	5	5	7	2
181 - 185 days	6	7			11	10	10	9	9	8					3	3
186 - 190 days						1	1									
191 - 195 days					1											
196 - 200 days																
Over 200 days																

Average Cost Per Pupil in Daily Attendance

	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
Cost	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
$ 99 or less																		
$100 - $199																		
$200 - $299									1									
$300 - $399					1	11	12	11	15	9								
$400 - $499					9	9			11	17	10	10	6	5	12	12	2	5
$500 - $599										1							2	5
$600 - $699	5	5	13	12													3	4
$700 - $799																		
$800 - $899																		
$900 or more																		

Average Cost Per Pupil in Daily Attendence

Cost	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
$ 99 or less																
$100 - $199																
$200 - $299																
$300 - $399					6	7	6		9							
$400 - $499	3	4			3	3	3			8	5	5	5	5	8	8
$500 - $599					2	1	2			2					2	2
$600 - $699			17	15	1	1	1									
$700 - $799								9								
$800 - $899																
$900 or more																

Type of Library Facilities Available to the Class

Library	Bordeaux B	Bordeaux B+P	Manning B	Manning B+P	Murphy B	Murphy B+P	Cleland B	Cleland LE	Kendrick B	Kendrick LE	Stauffer B	Stauffer LE	Ruddell B	Ruddell LING	Schneyer B	Schneyer LING	Sheldon B	Sheldon LING
Have librarian	5	5	5	8			12	9	8	12	10	10	6	5			5	8
Do not have librarian			8	4	10	20		2	19	15					12	12	2	6

Teacher Attrition

Attrition	Bordeaux B	Bordeaux B+P	Manning B	Manning B+P	Murphy B	Murphy B+P	Cleland B	Cleland LE	Kendrick B	Kendrick LE	Stauffer B	Stauffer LE	Ruddell B	Ruddell LING	Schneyer B	Schneyer LING	Sheldon B	Sheldon LING
Teacher not replaced	5	5	13	12	10	19	12	11	25	25	10	10	5	5	12	12	7	14
Teacher replaced						1				2			1					

Type of Library Facilities Available to The Class

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
Library	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Have librarian	2	5			10	12	10	9	9	8					7	9
Do not have librarian	4	2	17	15	2		2				5	5	5	5	3	1

Teacher Attrition

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Teacher not replaced	6	7	15	14				4	9	8	5	5	5	5	10	10
Teacher replaced			1	1				5								

Type of Community

Type	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
Rural or Farm			13	12					1	2								
Urban over 2,500	5	5			5	15	12	11				10	6	5	11	12	2	5
Suburban over 2,500					5	5			26	24							5	9
Incorporated less than 2,500											10							
Other															1			

Type of Community

	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Rural or farm																
Urban over 2,500			17	15	1	4	1								3	3
Surburan over 2,500	5	7			11	8	11	9	9	8	5	5	5	5	7	7
Incorporated less than 2,400	1															
Other																

Median Number of Years Education Completed by Adults in Community

No. of Years	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
5																		
6																		
7												2						
8															3			1
9	5	5					1	2					2	1	2	6		
10			13	12		10	3	5		1	10			3		3		2
11					10	10	4	1	9	2			1		2	2	2	3
12							2	1	12	17		8	3	1	5	1	5	7
13							2	2	5	7								
14									1									1

Median Number of Year's Education Completed by Adults in Community

No. of Years	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
5																
6																
7																
8																
9					1		1									
10		4	17	15	3	3	3				5	5	5	5		
11					3	4	3	9								
12	4	2			3	3	3		9	8					1	1
13	2	1			1	1	1								7	8
14					1	1	1								2	1

Population of the Community in Which the School is Located

Population	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
Rural or Farm																		
Incorporated, less than 1,000																		
Incorporated, 1,001 - 2,500										2								
Urban 2,501 - 5,000			13	12			6	4		2	10	10			4			2
Urban 5,001 - 10,000							6	7	1	6					5	6	2	3
Urban 10,001 - 25,000									7	7					3	5	3	4
Urban 25,001 - 100,000	5	5			10	20			19	10								
Urban 100,001 - 500,000													6	5			2	5
Urban 500,001 - 1,000,000																1		
Urban over 1,000,000																		

Population of the Community in Which the School is Located

Population	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
Rural or Farm																
Incorporated less than 1,000																
Incorporated 1001 - 2,5000			1			1	1									
Urban 25001 - 5,000	3	6			1	1									4	5
Urban 5001 - 10,000	3	1	4	1	2	1	3								3	2
Urban 10,001 - 25,000					3	4	1	9		8	5					
Urban 25,000 - 100,000			12	14	6	5	6		9			5	5	5	3	3
Urban 100,001 - 500,000							1									
Urban 500,001 - 1,000,000																
Urban Over 1,000,000																

Median Income in Community

	Bordeaux		Manning		Murphy		Cleland		Kendrick		Stauffer		Ruddell		Schneyer		Sheldon	
Income	B	B+P	B	B+P	B	B+P	B	LE	B	LE	B	LE	B	LING	B	LING	B	LING
$ 0 - $1,000																		
$1001 - $2,000			13	12					1						1			
$2001 - $3,000												2			2	1		
$3001 - $4,000	5	5						1	3	1			2	1		1		
$4001 - $5,000								2	1	3	10				2	3		1
$5001 - $6,000						10	4	4	7	8					3	4		2
$6001 - $7,000					10	10	4	1	8	8		8	1	3	2	2	3	5
$7001 - $8,000							2	1	6	7			2	1	2	1	1	1
$8001 - $9,000													1				3	5
Over $9,000							2	2	1									

Median Income in Community

Income	Fry		Mazurkiewicz		Hahn			Tanyzer			Hayes				Wyatt	
	B	ITA	B	ITA	B	ITA	LE	B	ITA	P/L	B	ITA	B+P	P/L	B	P/L
$ 0 - $1,000																
$1001 - $2,000																
$2001 - $3,000																
$3001 - $4,000																
$4001 - $5,000											5	5	5	5		
$5001 - $6,000		2	17	15	3	3	3								3	3
$6001 - $7,000	1	4			4	4	4									
$7001 - $8,000	3				1	1	1	9							3	3
$8001 - $9,000	2	1			2	2	2			8					2	3
Over $9,000					2	2	2		9						2	1

APPENDIX D

CATEGORICAL DATA BY PROJECT FOR ALL TWENTY-SEVEN PROJECTS

Project	Director
01	Bordeaux
02	Chall
03	Cleland
04	Fry
05	Hahn
06	Harris
07	Hayes
08	Heilman
09	Horn
10	Kendrick
11	Macdonald
12	Manning
13	Marita
14	Mazurkiewicz
15	McCanne
16	Morrill
17	Murphy
18	Niles
19	Reid
20	Ruddell
21	Schneyer
22	Sheldon
23	Spache
24	Spencer
25	Stauffer
26	Tanyzer
27	Wyatt

Overall Teacher Competence

Project Rating	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
											X																
Incompetent		1	2						1				2				1		9			1					
Poor	2	1	2	3	4	3	2	5	5	15		24	4	9	1			3	11	14	3	2	16				1
Adequate	5	4	1	5	5	6	4	18	6	28		10	13	27	5	4	4	11	13	5	7	6	25	6	4	5	6
Good	4	4	7	6	15	26	6	4	7	11		2	6	11	18	11	12	17	15	3	5	8	16	9	5	12	17
Excellent	4	2	11	6	12	13	8		9				7	1	4	18	13	9	3		9	4	7	8	11	9	6

X Information Unavailable

Overall Teacher Competence

Project Rating	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
											X																
Incompetent		1	2						1				2				1		9			1					
Poor	2	1	2	3	4	3	2	5	5	15		24	4	9	1			3	11	14	3	2	16				1
Adequate	5	4	1	5	5	6	4	18	6	28		10	13	27	5	4	4	11	13	5	7	6	25	6	4	5	6
Good	4	4	7	6	15	26	6	4	7	11		2	6	11	18	11	12	17	15	3	5	8	16	9	5	12	17
Excellent	4	2	11	6	12	13	8		9				7	1	4	18	13	9	3		9	4	7	8	11	9	6

X Information Unavailable

Awareness of and Attention Paid to Individual Needs of Pupils

Project Rating	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
						X					X								X								
Total lack of awareness of needs		1			1		2		1								1					2					
Limited awareness of and attention to needs	3	1	4	2	1		2	4	2	15		22	2	5	1	2		1		13	3	2	11	1			2
Moderate awareness	5	3	5	6	10		5	18	7	26		12	11	32	13	3	3	20		8	9	7	28	9	4	4	10
Generally aware & adjusts to needs	3	4	5	8	5		6	3	8	12		2	14	10	11	16	13	10		1	6	6	20	5	8	12	14
Exceptionally aware with effective adjustment	4	3	9	4	19		5	2	10	1			5	1	3	13	13	9			6	4	5	8	8	10	4

X Information Unavailable

Highest Degree Held by Teacher

Project Degree	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Less than bachelor	1	3	2	2		3		5		3	2		5	15		2	8	1	3	1	6	5	1	9	1		1
More than bachelor less than masters	12	3	7	5	20	28	11	16		6	7	36	25	1	19	28	2	10	3	21	11	8	53	11	5	20	18
Masters degree	1	2	6	4	4	3	3	4	11	1			1	3	1	6	3	6	1		3	3	10	2	2	2	3
Masters + additional graduate work			5	1	3	4		2	8				1	2	3		1	3				2		1		3	1
Specialists or professional																											
Doctors degree																											
Bachelors degree	1	4	2	8	9	10	6		9	44	7			25	5	18	16	20	43		4	3			12		7

Type of Teaching Certificate Held by Teacher

Project Certificate	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Uncertified																			1								
Lowest sub-standard					2			2						6		3			1			2		5			3
Higher sub-standard	2	2		2		10		2		4	1		2	13		13			1		5	2	1	7	1		
Standard type	12	10	2	17	31	38	20	23	28	46	10	36	24	29	5	15	30	33	46	22	4	15	54	11	19	23	27
Higher than standard type	1		21	1	3					4	4		4		23	3			2		15	2	9			3	
Other													4					7									

Total Number of Years of Teaching Experience
(exclusive of current year)

Project No. of Years	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
0 - 4	4	5	1	8	8	24	9	3	2	12	2	14	8	18		14	7	19	26	7	5	3	19	3	2	13	7
5 - 9	4	2	6	5	7	13	3	5	1	12	1	7	6	4	6	3	4	8	5	5	3	6	16	4	4	7	11
10 - 14		1	5	3	8	2	3	9	3	7	3	7	5	3	6	7	4	4	4	4	4	6	7	5	2	4	2
15 - 19	5		1	1	7	3	2	4	4	12	1	5	2	4	4	3	3	5	3	2	5	2	7	3	3	1	4
20 - 24		3	1	2	1	2	1	1	2	5	2	2	3	4	4	1	2	1	3	1	1	2	6	4	1	1	3
25 - 29	1		6		2		1	2	6	2	1		3	5	3	3	3	1	4	2	3	1	4	1	3		2
30 - 34			1		2	3	1		4	4	4		1	4	2	2	3		2		1	1	4	1	3		1
35 - 39		1	1	1	1			3	2		2	1	3	5	2	1	2	2	3	1	1		1				
40 - 44	1		1			1			4				1	1	1		2		1		1			2	2		
45 - 49																											
Means	12	11	18	9	13	8	9	15	24	13	21	9	15	15	19	11	17	8		12	15	12	12	17	19	6	11

Number of Years of First Grade Teaching Experience
(exclusive of current year)

Project No. of Years	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
0 - 4	7	5	4	13	11	37	12	9	4	20	4	20	10	21	2	17	8	23	30	16	8	5	28	5	4	20	11
5 - 9	1	2	7	5	11	7	3	7	3	11	3	8	7	5	12	8	8	7	5		4	9	16	3	4	4	8
10 - 14	2	1	4	1	11	2	2	4	5	10	4	5	7	5	5	4	2	4	4	3	2	3	10	8	5	2	4
15 - 19	4		2			1	1	2	3	8	3	2	3	8	3	4	3	3	3	2	6	2	3	4	2		5
20 - 24		3	5		1		1	2	4	3	1		2	2	4		2	2	3		2	1	5	1			2
25 - 29					2	1	1		2			1	1	1		1	4		4		1		1		1		
30 - 34				1				1	4	2	1		1	3			2		1		1	1	1		3		
35 - 39		1	1					2	3				1	2	2			1	1	1				1			
40 - 44	1													1			1							1	1		
45 - 49																											
Means	10	11	13	5	8	4	7	11	18	9	11	6	10	11	12	6	13	6		7	11	9	8	13	14	3	8

Teacher Absence

No. of Days / Project	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
0 - 4	8	3	14	8	19	14	11	15	13	31	12	25	13	18	20	21	24	22	26	11	10	14	40	19	15	7	20
5 - 9	4	2	6	9	12	19	6	9	10	17	1	9	17	19	5	7	3	13	5	8	8	6	17	2	3	11	8
10 - 14	2	4	2	3	3	7	2		3	3	1		1	7		4	2	3	4	2	4		6		1	8	2
15 - 19	1	2	1		2	3		1	1			2		2	1	1		2	3		1	1	1				
20 - 24		1								1	1			2			1		3		1				1		
25 - 29							1			1									4								
30 - 34						1		2	1										2								
35 - 39											1				1				3								
40 - 44																			1								
45 - 49						1							1														
Means	5	10	4	5	5	9	5	6	6	4	6	3	6	6	4	4	3	4		4	6	4	4	2	4	7	4

Scores on San Diego Teacher Attitude Scale: Individualized Approach

Project Total Score	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
		X		X			X	X	X							X	X	X	X				X	X	X	X	
0 - 9																				9							
10 - 19			2									1		1						9							1
20 - 29			4		1	2				2		5	1	7	1					1	3						1
30 - 39	10		8		8	18				26	11	10	12	17	8					1	11	11					14
40 - 49	5		6		23	28				21	4	19	17	21	17						10	10					14
50 - 59			3		4					5		1	1	2	1												
60 - 69													1														
70 - 79																											
80 - 89																											
90 - 99																											
Means	37		36		43	40				40	37	39	41	38	41					11	37	39					38

X Information Unavailable

Scores on San Diego Teacher Attitude Scale: Language Experience Approach

Project Total Score	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
		X		X			X	X	X							X	X	X	X				X	X	X	X	
0 - 9													1							5							
10 - 19			3		1					2		1									1						
20 - 29			5		3	7				17	2	14	5	6	2					2	5	5					3
30 - 39	13		5		11	18				11	13	14	15	19	15						7	7					21
40 - 49	2		2		15	22				10		7	11	23	9						11	9					6
50 - 59			8		6	1				14					1												
60 - 69																											
70 - 79																											
80 - 89																											
90 - 99																											
Means	36		38		41	39				37	33	33	36	38	38					10	36	37					36

X Information Unavailable

Scores on San Diego Teacher Attitude Scale: Basic Series

Projects Total Score	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
		X		X			X	X	X							X	X	X	X				X	X	X	X	
0 - 9																											
10 - 19			2		1					3			1														
20 - 29			3		2					13			2							1							2
30 - 39			3		11	10				9	3	2	13	11	4							1					8
40 - 49	15		10		20	34				24	6	20	14	29	19						17	17					20
50 - 59			5		2	4				5	6	14	2	8	4						7	3					
60 - 69																											
70 - 79																											
80 - 89																											
90 - 99																											
Means	47		41		40	43				38	47	48	39	44	45					21	47	45					41

X Information Unavailable

Class Structure

Project Rating	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
						X					X								X								
Generally vague & directions confusing		1	2				1		2				1		1		1				1	1					
More vague than clear, more loose than structured	1		2	2	4		1	7	2	22		23		13		1		5		16	3	1	18				1
Moderate structure & information	4	2	1	2	6		4	13	3	22		12	4	26	6	1	1	10		3	5	6	25	1	3	6	10
Well organized & clear	6	4	2	8	9		6	7	8	10		1	9	8	14	5	16	16		3	7	7	17	6	7	8	13
Highly structured	4	5	16	8	17		8		13				18	1	7	27	12	9			8	6	2	16	10	12	6

X Information Unavailable

Extent of Class Participation

Project	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
						X					X								X								
Class generally unresponsive		1	2						1				1								3	1					
Participation variable, tends to be low	2	1	2	2	2		3	3	2	14		25	3	8	1	3	1	3		15	6	1	13				2
One group participates, most don't	4	2	4	5	7		5	22	7	29		10	15	31	5	4	4	10		5	4	5	24	4	4	5	9
Moderately high participation	4	5	5	10	13		5	1	7	11		1	6	9	19	18	16	19		2	7	12	19	14	11	14	16
High participation	5	3	10	3	14		7	1	11				7		3	9	9	8			4	2	8	5	5	7	3

X Information Unavailable

Pre-First Grade School Experience

Project Half Days Experience	01	02	03	04	05	06	07	08	09	10	11	12	13	14
None	160	23	34		3	459	202	159	427	59	1	23	27	232
Less than 20	131						65					1	1	
21 - 100	79	5	17	1	22	56	44	4	75	1	2	9	24	
101 - 200	144	158	259	369	752	795	62	413		1229	326	773	604	751
201 - 300	63		6		33	37	8					1	5	
301 - 400	51		25	3	25	2	4	2			1	21	23	
401 - 500	11				2									
501 - 600	17		1	2	11									
601 - 700	2			1										
701 - 800	15				1									

Pre-First Grade School Experience (continued)

Project Half Days Experience	15	16	17	18	19	20	21	22	23	24	25	26	27
None	120		247	35	2		171	1	753	37	217	2	8
Less than 20	2	1	4	3	1		3		147	80	114		2
21 - 100	25	9	32	19	9		182	5		127			3
101 - 200	82	672	448	907	338	421	312	368	421	166	125	643	559
201 - 300	7	2	1	6	6		3	48		1		6	20
301 - 400	24	5		25	14		10	21				1	26
401 - 500					1			6					5
501 - 600	1							5				1	7
601 - 700								1					2
701 - 800								1					1

Class Size at Beginning of School Year

Project No. of Pupils	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
		X		X				X																			
0 - 4																								1			
5 - 9																								2			
10 - 14									1					1					1	2							
15 - 19					1	1	2		3					1	4	4	4		4			4		6			4
20 - 24			3		8	2	10		11	4	5	2	9	3	6	14	4	2	21	1	2	8	6	9	2	4	16
25 - 29	9		1		15	27	7		10	21	10	21	18	19	11	14	9	14	23	9	6	8	42	5	16	16	8
30 - 34	6		12		11	15			3	25	1	13	3	20	6	2	10	23	2	7	8	1	16		2	6	2
35 - 39			6		1	2	1			4			1	4			3	1			7						
40 - 44						1														3	1						
45 - 49			1										1														
Means	29		33		27	29	24		24	30	25	28	27	29	26	24	27	29		29	32	23	28	20	28	27	23

X Information Unavailable

Class Size as of May 1, 1965

Project No. of Pupils	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
0 - 4													1											1			
5 - 9																								2			
10 - 14								1						1					1	2				1			
15 - 19				1	2		4	1		4			1	1	4	2	1		4			2		9			6
20 - 24		5	4	9	7	5	9	4	8	22	4		6	8	8	14	8	5	21		3	9	4	7	4	4	16
25 - 29	3	7	4	10	21	24	6	16	19	19	11	18	17	16	13	17	12	14	23	2	9	10	41	3	12	15	7
30 - 34	12		9		5	16	1	4	1	9	1	16	6	17	3	1	9	18	2	7	6		15		3	7	1
35 - 39			5		1	3		1				2	1	4				3		7	5		4		1		
40 - 44														1						2	1						
45 - 49			1																	2							
Means	30	25	31	24	26	28	23	26	26	25	25	30	26	29	25	24	27	29		34	31	23	29	18	27	27	22

Length of School Day

Project No. of Hours	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Less than 3 hours													1														
3.0 - 3.5										3		17															
3.6 - 4.0		3								19		19												1			
4.1 - 4.5						12				7					1									6			
4.6 - 5.0	15	9			1		20			19	2		1		4	34	20	40			24	20		14		9	
5.1 - 5.5				20	13	36				6	5		29		16		10			22		1	12	2		17	21
5.6 - 6.0			23		14			27			4		1	48	5				51				13				9
6.0 - 6.5					8				28		2				2								31		20		
6.6 - 7.0											3												8				
Over 7 hours																											

Length of School Year

Project No. of Days	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Less than 160 days																											
161 - 165																											
166 - 170																											
171 - 175											1	36			2				6					13			
176 - 180	15				2		20	27	28	54	8			48	25		20			22			64	10	20		21
181 - 185				20	31	40					3					34	10	40			24	14				26	9
186 - 190		12			2	8					4		26						45			7					
191 - 195			23		1								6														
196 - 200																											
over 200 days																											

Average Cost Per Pupil in Daily Attendance

Project Cost	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
											X																
$ 99 or less																											
$100 - $199																											
$200 - $299									28	1			1		5			1						5			
$300 - $399			23		19					24			2		13		12	39						17		9	
$400 - $499				11	9		20	27		28			21		10		18			22	24	7			20	8	24
$500 - $599					5					1			8			34						7	8				6
$600 - $699	15	1			3							36		48					51			7	56	1			
$700 - $799		11				48																				9	
$800 - $899																											
$900 or more																											

X Information Unavailable

Type of Library Facilities Available to The Class

Project	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Have librarian	15	12	21	11	32	48				20	10	20	22		6			1		22		13	55	3	20	26	23
Do not have librarian			2	9	4		20	27	28	34	6	16	9	48	22	34	30	39	51		24	8	9	20			7

Teacher Attrition

Project	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Teacher not replaced	14	11	23	20	20	45	20	27	28	50	16	36	29	44	28	34	29	38	47	21	24	21	63	22	20	21	29
Teacher replaced		1				3				2			2	3			1	1	4	1			1	1		5	1

Type of Community

Project Type	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Rural or farm										3	14	36	2		16								6	9			
Urban over 2,500	15	12	23		6	48		27	27		2		11	48	7	34	20	40	51	20	23	7	4	12	10		9
Suburban over 2,500				18	30		20		1	50			18				10					14				26	21
Incorporated less than 2,500				2											5								54	2	10		
Other																					1						

Median Number of Year's Education Completed by Adults in Community

Project No. of Years	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
								X																			
5									28				11														
6																											
7													1		3								4		2		
8		3				16									12						3	1	6	1			
9	15	2	3		2	24					4				5			5		6	8						
10		7	8	8	9	4	20			1	6	36	7	48	4		10	6		5	3	2	15	2	10		
11			5		10	4				11	4		5			34	20	8	51	5	4	5	18	2		9	
12			3	7	9					29	2				4			19		5	6	12	21		8	17	2
13			4	5	3					12			8					2		1							22
14					3					1												1					6

X Information Unavailable

Population of the Community in Which the School is Located

Pop. / Project	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Rural or Farm													2		7								6	5			
Incorporated places of less than 1,000											7				7									2			
Incorporated places of 1,001 to 2,500					2					2	7			2	7									2	10		
Urban 2,501 - 5,000			10	14	2	32				2	2	36	10		3						4	2	17	5	10		13
Urban 5,001 - 10,000			13	6	6	16				7			4	8	2						11	5	8	4			8
Urban 10,001 - 25,000					8					14			6								8	7	33	5		17	
Urban 25,001 - 100,000	15				17		20	27		29			10	38	2	34	30									9	9
Urban 100,001 - 500,000					1													40	51	22		7					
Urban 500,001 - 1,000,000									28												1						
Urban over 1,000,000		12																									

Median Income in Community

Project Income	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
$000 - $1,000													7														
$1001 - 2,000						4				1		36									1						
$2001 - 3,000									28						11			1			3		13	2	2		
$3001 - 4,000	15	12	1			24				4	5				9			4		6	1		33	6			
$4001 - 5,000			2			16	20	27		4	5				8			5			5	1	8	11	10		
$5001 - 6,000			8	2	9					15	6			48			10	9			7	2	4	4			9
$6001 - 7,000			5	9	12					16			10			34	20	9		10	4	8			8		
$7001 - 8,000			3	6	3	4				13			6					12		3	3	2				9	8
$8001 - 9,000				3	6								8						51	2		8				17	7
Over $9,000			4		6					1										1							6

APPENDIX E

PHONETICALLY REGULAR WORDS ORAL READING TEST

and

GATES WORD PRONUNCIATION TEST

PHONETICALLY REGULAR WORDS ORAL READING TEST

Child's Name ______________________________ Date ______________

School ________________________ Room __________ Code Number _____

Examiner _______________________ Number of words read correctly ___

1. nap
2. pen
3. hid
4. job
5. rug
6. shade
7. drive
8. joke
9. mule
10. plain
11. hay
12. keen
13. least
14. loan
15. show
16. walk
17. haul
18. jaw
19. soil
20. joy
21. frown
22. trout
23. term
24. curl
25. birch
26. rare
27. star
28. porch
29. smooth
30. shook

Directions: Have pupil read words from one copy while examiner makes another copy. Do not give pupil a second chance but accept immediate self-correction. Let every student try the whole first column. If he gets two words correct from word number six on, let him try the whole second column.

GATES WORD PRONUNCIATION TEST

EXAMINER'S COPY

Directions: Have the child read the words out loud. Tell him you would like him to read some words for you. If he fails the first time, ask him to try the word again. Continue until ten consecutive words have been missed. As the words become difficult, special care should be taken to encourage the child. The score is one point for each word correctly pronounced on the first trial, one-half point for each word correctly pronounced on the second trial. (Note: 9 1/2 correct would be scored as 10.)

---

1. so
2. we
3. as
4. go
5. the
6. not
7. how
8. may
9. king
10. here
11. grow
12. late
13. every
14. about
15. paper
16. blind
17. window
18. family
19. perhaps
20. plaster
21. passenger
22. wander
23. interest
24. chocolate
25. dispute
26. portion
27. conductor
28. brightness
29. intelligent
30. construct
31. position
32. profitable
33. irregular
34. schoolmaster
35. lamentation
36. community
37. satisfactory
38. illustrious
39. superstition
40. affectionate

Child's name: ______________________________ Test date __ __ __

Examiner: ______________________________ Birth date __ __ __

Age: _____